



STAT150

Quantitative Business Decisions

S3 Day 2015

Dept of Statistics

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General Information

Unit convenor and teaching staff

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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 and mathematical 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 Excel to manipulate and analyse data
- draw conclusions from the results of data analysis
- write and present a report based on the results of a statistical analysis
- use appropriate techniques to analyse data
- apply statistical techniques to problems arising from diverse fields of research

Assessment Tasks

Name	Weighting	Due
<u>4 x Hurdle Tests</u>	10%	Sessions 2, 4, 7 and 13
<u>Assignment</u>	15%	Session 11(13th January, 9pm)
<u>Class Test</u>	15%	Practical Class Session 8
<u>Final Examination</u>	60%	Examination Period

4 x Hurdle Tests

Due: **Sessions 2, 4, 7 and 13**

Weighting: **10%**

The Hurdle Tests are online quizzes that will be made available on iLearn prior to the due dates. Students are allowed an unlimited number of attempts at each test until the deadline. The 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 time a student attempts a test a new version of it will be generated. The quizzes are designed to give students an opportunity to practice theoretical, mechanical and interpretational aspects of statistics. Hurdle 1 helps students understand if they have the background mathematics needed for STAT150. It is worth 0%, but students still need to pass it to access the following hurdles. Hurdle 2 is worth 2% and hurdle 3, 4 are worth 4% each. Extensions will only be granted for cases in which an application for disruption to studies has been approved.

On successful completion you will be able to:

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

Assignment

Due: **Session 11(13th January, 9pm)**

Weighting: **15%**

The Assignment provides students with an opportunity to develop and to apply sound statistical practice as part of a group. It reinforces the concepts covered in lectures and the skills learned from the practical material. This assignment requires students to use Excel to analyse data using appropriate techniques. The assignment must be submitted in the form of a statistical report. Each group member will take charge of a particular aspect of the report. The assignment will be

made available on iLearn at least one week prior to the due date. Submission must be via the iLearn turnitin link only and more details will be given in the assignment. Penalties apply for late submissions and failure of a student to contribute to the group report will result in no marks being awarded to that student. Extensions will only be granted for cases in which an application for disruption to studies has been approved.

On successful completion you will be able to:

- organise and summarise data graphically and numerically
- use Excel to manipulate and analyse data
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- write and present a report based on the results of a statistical analysis
- use appropriate techniques to analyse data
- apply statistical techniques to problems arising from diverse fields of research

Class Test

Due: **Practical Class Session 8**

Weighting: **15%**

The Class Test will be held in a students' practical class in session 8, Wednesday 6th January. The class test must be taken in the practical class that a student is registered in. 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:

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

Final Examination

Due: **Examination Period**

Weighting: **60%**

The Final Examination will be a three hour written exam (plus ten minutes reading time) and will be held during the examination period which runs from 25th January to 29 January, 2016. A page of formulae and relevant Excel output will be included in the final examination. Students will be permitted to take one A4 sheet (any colour), handwritten on both sides (using pens and/or pencils) into the final examination. This sheet must be submitted with your 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 in the exam). See the

Session 13 iLearn important information for more details on preparing for the final exam.

On successful completion you will be able to:

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

Delivery and Resources

Classes

In general there will be three 'Sessions' per week, held on Mondays, Wednesdays and Fridays.

Students should enrol in and attend the following classes each session:

- 1 x 2 hour lecture beginning in Session 1 (students enrolled in the iLecture option listen to lectures through the ECHO recordings rather than attending a class)
- 1 x 1 hour compulsory tutorial beginning in Session 2
- 1 x 1 hour compulsory practical beginning in Session 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/>

Required and Recommended Texts and/or Materials

- A standard calculator should be brought to all classes.
- Excel 2013 for Microsoft Windows will be used throughout the course (other versions of Excel should work but ask your tutor or lecturer if it doesn't).

Required Text:

- Business Statistics (Global edition, 3e) by Sharpe, De Veaux and Velleman (ISBN 9781488607158) with the MyStatLab key will be used throughout this course and is a required text. This can be purchased in hard copy from the Coop Bookshop or directly from Pearson. The text in e-format with MyStatLab is also available - see iLearn for details.

Many other useful texts are available for additional practice material. A list will be made available on iLearn.

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

Session	LECTURE TOPIC	Assessment Due
1	Introduction to statistics	
2	Summarising and displaying data	Hurdle 1 due, 9th December
3	Summarising and displaying data (continued)	
4	Introduction to distributions: the normal distribution	Hurdle 2 due, 14th December
5	Sampling distributions and confidence intervals for proportions	
6	Sampling distributions and confidence intervals for means	
SEMESTER BREAK: 19th December - 3rd January		
7	One sample hypothesis test for a population mean	Hurdle 3 due, 4th January
8	Hypothesis tests for comparing population means	Class Test (held during Practicals, 6th January)
9	Simple linear regression (Part 1)	
10	Simple linear regression (Part 2)	
11	Hypothesis tests for a population proportion: z-test and chi-squared goodness-of fit	Assignment due by 5pm, Wednesday 13th January
12	Chi-squared test of independence	-
13	Review of STAT150	Hurdle 4 due 22nd January

Learning and Teaching Activities

Lectures

Lectures begin in Session 1. Students should attend one 2-hour lecture per session. In general, there are three sessions per week, on Mondays, Wednesdays and Fridays. Copies of the lecture slides will be made available via iLearn. Students should print out the lecture slides and bring the printout to lectures. The lectures are also recorded via 'echo360', and can be accessed on iLearn (under Echo Recordings). Students enrolled in the iLecture option are expected to listen

to the lecture following one of the face-to-face lectures.

Tutorials

Tutorials are compulsory and begin in Session 2. Each tutorial is based on work from the previous session'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 session.

Practicals

Practical classes are compulsory and begin in Session 2. Every session 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 practical material is based on work from the previous session'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 class each session. Students preferring to use their own computers to do the practical work are encouraged to do so.

Help with STAT150 related administrative matters

For help with STAT150 related administrative matters (such as class enrolment) students should contact Victoria Park, the STAT150 admin officer, via stat150.admin@mq.edu.au

Staff consultation (office) hours

Your lecturer will be available for consultation to help with your progress in Introductory Statistics. Consultation times will be advised in the first lecture.

Computing Laboratories

Excel 13 will be used in practical classes and for completing assignments. Assignments and quizzes can be completed in the computing labs in E4B. Computing labs now 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

Assessment Policy <http://mq.edu.au/policy/docs/assessment/policy.html>

Grading Policy <http://mq.edu.au/policy/docs/grading/policy.html>

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

Grievance Management Policy http://mq.edu.au/policy/docs/grievance_management/policy.html

Disruption to Studies Policy http://www.mq.edu.au/policy/docs/disruption_studies/policy.html *The Disruption to Studies Policy is effective from March 3 2014 and replaces the Special Consideration Policy.*

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/

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://informatics.mq.edu.au/help/>.

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

Graduate Capabilities

Creative and Innovative

Our graduates will also be capable of creative thinking and of creating knowledge. They will be imaginative and open to experience and capable of innovation at work and in the community. We want them to be engaged in applying their critical, creative thinking.

This graduate capability is supported by:

Learning outcomes

- write and present a report based on the results of a statistical analysis
- apply statistical techniques to problems arising from diverse fields of research

Assessment tasks

- Assignment
- Final Examination

Capable of Professional and Personal Judgement and Initiative

We want our graduates to have emotional intelligence and sound interpersonal skills and to demonstrate discernment and common sense in their professional and personal judgement. They will exercise initiative as needed. They will be capable of risk assessment, and be able to handle ambiguity and complexity, enabling them to be adaptable in diverse and changing environments.

This graduate capability is supported by:

Learning outcomes

- draw conclusions from the results of data analysis
- write and present a report based on the results of a statistical analysis
- apply statistical techniques to problems arising from diverse fields of research

Assessment tasks

- 4 x Hurdle Tests
- Assignment
- Final Examination

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

- apply statistical techniques to problems arising from diverse fields of research

Assessment tasks

- 4 x Hurdle Tests
- Assignment
- Class Test
- Final Examination

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

Assessment tasks

- 4 x Hurdle Tests
- Assignment
- Class Test
- 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 Excel to manipulate and analyse data
- draw conclusions from the results of data analysis
- write and present a report based on the results of a statistical analysis
- use appropriate techniques to analyse data
- apply statistical techniques to problems arising from diverse fields of research

Assessment tasks

- 4 x Hurdle Tests
- Assignment
- Class Test
- 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 Excel to manipulate and analyse data
- draw conclusions from the results of data analysis
- write and present a report based on the results of a statistical analysis
- use appropriate techniques to analyse data
- apply statistical techniques to problems arising from diverse fields of research

Assessment tasks

- 4 x Hurdle Tests
- Assignment
- Class Test
- 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
- write and present a report based on the results of a statistical analysis
- apply statistical techniques to problems arising from diverse fields of research

Assessment tasks

- Assignment
- Final Examination

Engaged and Ethical Local and Global citizens

As local citizens our graduates will be aware of indigenous perspectives and of the nation's historical context. They will be engaged with the challenges of contemporary society and with knowledge and ideas. We want our graduates to have respect for diversity, to be open-minded, sensitive to others and inclusive, and to be open to other cultures and perspectives: they should have a level of cultural literacy. Our graduates should be aware of disadvantage and social justice, and be willing to participate to help create a wiser and better society.

This graduate capability is supported by:

Learning outcome

- apply statistical techniques to problems arising from diverse fields of research

Assessment tasks

- 4 x Hurdle Tests
- Assignment
- Final Examination

Socially and Environmentally Active and Responsible

We want our graduates to be aware of and have respect for self and others; to be able to work with others as a leader and a team player; to have a sense of connectedness with others and country; and to have a sense of mutual obligation. Our graduates should be informed and active participants in moving society towards sustainability.

This graduate capability is supported by:

Learning outcome

- apply statistical techniques to problems arising from diverse fields of research

Assessment tasks

- 4 x Hurdle Tests
- Assignment
- Final Examination