



STAT150

Quantitative Business Decisions

S3 Day 2016

Dept of Statistics

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General Information

Unit convenor and teaching staff

Lecturer

Hilary Green

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Australian Hearing Hub level 2

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 compulsory classes attended.

The only excuse for missing a class, assessment 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. For approved disruption to class tests or final exams a supplementary examination will be given. Supplementary final examinations will be scheduled soon after the conclusion of the official examination period in regular business hours only.

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/.

Assessment Tasks

| Name | Weighting | Due |
|--------------------------------------|-----------|--------------------------------|
| Tutorial attendance | 0% | Each Day |
| Practical Attendance | 0% | Each Day |
| Class Test 1 | 20% | Day 7 Practical Class |
| Assignment | 15% | Day 10, 11th Jan, 5pm |
| Class Test 2 | 20% | Day 12 Practical Class, 16 Jan |
| Final Examination | 45% | University Examination Period |

Tutorial attendance

Due: **Each Day**

Weighting: **0%**

A minimum of 8 out of the 12 tutorials must be attended. Attendance will be taken during each class. Tutorials and practicals begin on Day 2.

On successful completion you will be able to:

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

Practical Attendance

Due: **Each Day**

Weighting: **0%**

A minimum of 8 out of the 12 practical sessions must be attended. Attendance will be taken during each class. Tutorials and practicals begin on Day 2.

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

Class Test 1

Due: **Day 7 Practical Class**

Weighting: **20%**

Class Test 1 will be held in practical classes on 4th January, the 7th day of classes. 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:

- 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

Assignment

Due: **Day 10, 11th Jan, 5pm**

Weighting: **15%**

This assignment provides students with an opportunity to develop and to apply sound statistical practice. 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 will be available on iLearn one week before the due date. Submission will be online via iLearn only. More submission details will be given in the assignment and in class. Late submissions will incur penalties consisting of 20% deductions in marks per day. 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 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: **Day 12 Practical Class, 16 Jan**

Weighting: **20%**

Class Test 2 will be held in practical classes on Day 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: **45%**

The Final Examination will be a two hour written examination (plus ten minutes reading time) and will be held early during the examination period which begins January 23, 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 in the exam). See the Day 13 iLearn area for more details on preparing for the final exam.

The University Examination timetable will be available in 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:

- 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

Delivery and Resources

Classes

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

- 1 x 2 hour lecture beginning on Day 1
- 1 x 1 hour compulsory tutorial beginning on Day 2
- 1 x 1 hour compulsory practical beginning on Day 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 (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 Hilary 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 and is a required text. 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

| DAY | LECTURE TOPIC | Assessment Tasks and Online Quizzes |
|-----|---------------|-------------------------------------|
|-----|---------------|-------------------------------------|

| | | |
|----|--|--|
| 1 | Introduction to statistics | |
| 2 | Summarising and displaying data | Online Quiz 1 |
| 3 | Summarising and displaying data (continued) | |
| 4 | Introduction to distributions: the normal distribution | Online Quiz 2 |
| 5 | Sampling distributions and confidence intervals for proportions | |
| 6 | Sampling distributions and confidence intervals for means | |
| 7 | One sample hypothesis tests for a population mean | Online Quiz 3 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) | Assignment due by 5pm |
| 11 | Hypothesis tests for a population proportion: z-test and chi-squared goodness-of fit | |
| 12 | Chi-squared test of independence | Class Test 2 in practical class |
| 13 | Review of STAT150 | Online Quiz 4 |

Learning and Teaching Activities

Lectures

Lectures begin on the first day of classes, Day 1. Students should attend one 2-hour session per Day of classes. 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 are compulsory and begin on the second day of classes, Day 2. Each tutorial is based on work from the previous Day'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 each tutorial class.

Practicals

Practical classes are compulsory and begin on the second day of classes, Day 2. During each practical class 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 Day'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 each practical class. Students preferring to use their own computers to do the practical work are encouraged to do so.

Online Quizzes: Days 2, 4, 7 and 13

Four online quizzes will be available. The quizzes are designed to give students an opportunity to practice theoretical, mechanical and interpretational aspects of statistics. The first quiz, should be attempted on Day 2. It is designed to assess students' ability to cope with the mathematical content of STAT150. The other quizzes, which should be attempted on Days 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 days 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 contact Victoria Park, the STAT150 admin officer, via stat150.admin@mq.edu.au

Staff consultation (office) hours

Hilary will be available for consultation from 8.25 - 8.55 am and 11.00-11.30 am each day of classes. Hilary will be in the Statistics department which is located on level 2 of the Australian Hearing Hub building.

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 and an opportunity to meet with other students to discuss problems. Information regarding supplementary workshops which may be run by the Numeracy Centre will be provided on iLearn. STAT150 assumes knowledge of high school mathematics. Anyone without this knowledge should take a mathematics unit prior to enrolling in STAT150. The timetable showing the operating hours of the Numeracy Centre during

session 3 will be made available on iLearn.

Computing Laboratories

Excel 13 will be used in practical sessions and for completing the assignment. The assignment 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 are shown on the page http://www.businessandconomics.mq.edu.au/current_students/undergraduate/resources/labs. The hours during Session 3 are: 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

New Assessment Policy in effect from Session 2 2016 http://mq.edu.au/policy/docs/assessment/policy_2016.html. For more information visit http://students.mq.edu.au/events/2016/07/19/new_assessment_policy_in_place_from_session_2/

Assessment Policy prior to Session 2 2016 <http://mq.edu.au/policy/docs/assessment/policy.html>

Grading Policy prior to Session 2 2016 <http://mq.edu.au/policy/docs/grading/policy.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

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://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 attendance
- Practical Attendance
- Class Test 1
- Assignment
- 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 attendance
- Practical Attendance
- Class Test 1
- Assignment
- 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 attendance
- Practical Attendance
- Class Test 1
- Assignment
- 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 attendance
- Assignment
- Final Examination

Changes from Previous Offering

Assessment Tasks and Weightings:

Assessment tasks and weightings changed significantly for Session 2, 2016 and remain the same for Session 3.

Prior to Session 2 2016, STAT150 assessment tasks consisted of four online Hurdle quizzes

(10%), one class test (15%), one assignment (15%) and a 3 hour final examination (60%).

As of Session 2, 2016, there will be no Hurdle quizzes in STAT150. Online quizzes on Days 2, 4, 7 and 13 are for revision purposes only. Assessment tasks will consist of two class tests worth 20% each (40%), one assignment (15%) and a two hour final examination (45%).

Required Text:

Prior to Session 2 2016, the required text was *Business Statistics (Global Edition, 3e)* by Sharpe, De Veaux and Velleman (ISBN 9781488607158).

As of Session 2 2016, the required text is *Business Statistics STAT150 A Custom Edition for Macquarie University* from *Business Statistics 3rd Edition Global Edition* by Sharpe, De Veaux and Velleman (ISBN 99781292058696)