



# STAT670

## Introductory Statistics

S2 External 2019

*Dept of Mathematics and Statistics*

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#### **Disclaimer**

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## General Information

Unit convenor and teaching staff

Unit Convenor

Maurizio Manuguerra

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See iLearn for consultation hours

Maurizio Manuguerra

[maurizio.manuguerra@mq.edu.au](mailto:maurizio.manuguerra@mq.edu.au)

Credit points

4

Prerequisites

Admission to MAppStat or GradCertAppStat or GradDipAppStat or MBiotech or MRadiopharmSc or MSc or MDataSc or MLabQAMgt or GradDipLabQAMgt or GradCertLabQAMg or MScInnovation

Corequisites

Co-badged status

Unit description

This unit provides a broad introduction to statistical concepts and data analysis techniques, providing basic statistical knowledge. The unit is concerned with the development of an understanding of statistical practice and is illustrated by a study of those techniques most commonly used in the sciences, social sciences and humanities. The aim of statistical practice is to make the scientific research process efficient; for this reason statistics is used in disciplines ranging from accountancy to zoology. Topics covered in this unit include: data collection methods; data quality; data summarisation; and statistical models like the normal distribution, followed by sampling distributions and statistical inferences about means, proportions and quantiles. Also studied are methods of analysis relating to comparisons, counted data and relationships, including regression and correlation. Statistical computer packages are used for handling and analysing data along with word processing for reporting the results. However, no prior computing knowledge is assumed.

## 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:

Manipulate, classify and summarise different types of data both graphically and numerically.

Deeply understand and apply appropriate statistical techniques for analysis of various types of data.

Use Minitab to organise, manipulate, summarise and analyse data.

Be able to check the assumptions underlying the statistical models; carry out a statistical analysis and draw conclusions from the results of data analysis.

Interpret statistical results and write a statistics report based on the results of a statistical analysis.

Identify and apply appropriate statistical methods to address a range of practical problems.

Have a deep understanding of the differences between one-sample and two-sample statistical tests and be able to apply the tests in statistical analysis.

## General Assessment Information

**LATE SUBMISSION:** All assessments must be submitted by the official due date and time. No marks will be given to late work unless an extension has been granted following a successful application for [Special Consideration](#). Please contact the unit convenor for advice as soon as you become aware that you may have difficulty meeting any of the assessment deadlines. It is in your interests to make frequent submissions of your partially completed work. Note that later submissions completely replace any earlier submission, and so only the final submission made before the due date will be marked.

**FINAL EXAM POLICY:** examinations for individuals or groups of students. All students are expected to ensure that they are available until the end of the teaching semester, that is, the final day of the official examination period. The only excuse for not sitting an examination at the designated time is because of documented illness or unavoidable disruption. In these special circumstances, you may apply for special consideration via [ask.mq.edu.au](http://ask.mq.edu.au).

### SUPPLEMENTARY EXAMINATIONS:

**IMPORTANT:** 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. If you apply for special consideration, you must give the supplementary examination priority over any other pre-existing commitments, as such commitments will not usually be considered an acceptable basis for a second application for special consideration. 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 (<https://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
<a href="#">iLearn Quiz</a>	10%	No	Week 4
<a href="#">Mid-semester Exam</a>	20%	No	Week 7
<a href="#">Statistical Report</a>	20%	No	Week 12
<a href="#">Final Examination</a>	50%	No	University Examination Period

### iLearn Quiz

Due: **Week 4**

Weighting: **10%**

An online quiz will be held and more details on the scope of the quiz and precise release schedule will be on iLearn. It is your responsibility to find an appropriate location with a reliable internet connection where you can complete the exam. It is advisable to plan this in advance.

On successful completion you will be able to:

- Manipulate, classify and summarise different types of data both graphically and numerically.
- Use Minitab to organise, manipulate, summarise and analyse data.
- Identify and apply appropriate statistical methods to address a range of practical problems.

### Mid-semester Exam

Due: **Week 7**

Weighting: **20%**

The mid-semester exam is an online exam and will be made available on iLearn in week 7. From the time students start the exam, they will have 45 minutes to complete the exam online.

It is the student's responsibility to find an appropriate location with a reliable internet connection where they can complete the exam. It is advisable to plan in advance.

On successful completion you will be able to:

- Manipulate, classify and summarise different types of data both graphically and

numerically.

- Deeply understand and apply appropriate statistical techniques for analysis of various types of data.
- Be able to check the assumptions underlying the statistical models; carry out a statistical analysis and draw conclusions from the results of data analysis.
- Identify and apply appropriate statistical methods to address a range of practical problems.

## Statistical Report

Due: **Week 12**

Weighting: **20%**

Students will be required to conduct statistical data analysis identifying and applying appropriate methods and techniques, interpret statistical results and summarise the results in a report. This report requires students to use Minitab to analyse data using appropriate techniques.

The statistical report will assess:

- all material covered up to the end of week 10 of lectures. That is, all material up to and including simple linear regression.
- student's ability to use Minitab to solve statistical problems

The requirements for the report will be made available on iLearn one week prior to the due date. To complete this report, students will need to have worked through all of the practical material and have become proficient at using Minitab which is a statistical package, to carry out a statistical analysis. Students will also need to be able to write up their analysis and the results of this analysis in the report format which will be outlined in iLearn when the report is posted.

Submission must be via the iLearn turnitin link only and details will be given in the requirements for the report.

On successful completion you will be able to:

- Manipulate, classify and summarise different types of data both graphically and numerically.
- Deeply understand and apply appropriate statistical techniques for analysis of various types of data.
- Use Minitab to organise, manipulate, summarise and analyse data.
- Be able to check the assumptions underlying the statistical models; carry out a statistical analysis and draw conclusions from the results of data analysis.
- Interpret statistical results and write a statistics report based on the results of a statistical analysis.
- Identify and apply appropriate statistical methods to address a range of practical

problems.

- Have a deep understanding of the differences between one-sample and two-sample statistical tests and be able to apply the tests in statistical analysis.

## Final Examination

Due: **University Examination Period**

Weighting: **50%**

The Final Examination will be a two hour written exam (plus ten minutes reading time) and will be held during the examination period. 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 statistics calculator may also be taken into the final examination. See the week 13 iLearn important information for more details on preparing for the final exam.

On successful completion you will be able to:

- Manipulate, classify and summarise different types of data both graphically and numerically.
- Deeply understand and apply appropriate statistical techniques for analysis of various types of data.
- Be able to check the assumptions underlying the statistical models; carry out a statistical analysis and draw conclusions from the results of data analysis.
- Interpret statistical results and write a statistics report based on the results of a statistical analysis.
- Identify and apply appropriate statistical methods to address a range of practical problems.
- Have a deep understanding of the differences between one-sample and two-sample statistical tests and be able to apply the tests in statistical analysis.

## Delivery and Resources

### Census dates

The last day to withdraw from this unit without financial or academic penalty is August 22. The last date to withdraw from this unit without academic penalty is September 28.

### Classes

STAT670 will be delivered remotely, and no classes are scheduled.

Students will be given the opportunity to watch STAT170-INT lecture recordings on iLearn and may sit in on STAT170 lectures if they wish (please see timetable for locations and times).

**Please note:** there are no small group teaching activities (SGTA) or practical classes for STAT670, but students are expected to work through the material used in STAT170 classes and may sit in on STAT170 SGTA and/or practical classes if they wish. Please email the unit convenor to make arrangements.

## Software

The supported statistical software for this unit is **Minitab**. Students will be given guidance on how to use this software and be expected to conduct their analyses using Minitab for the in-session assessments. Students should also note that the examination will involve data analysis that contains Minitab output that students need to interpret to answer the exam questions.

## Help with STAT670 Related Administrative Matters

For help with STAT670 related administrative matters students should email the convenor.

## Required and Recommended Texts and/or Materials

- A calculator with statistics mode is essential and should be used for all tasks to help prepare for the final exam.
- The statistical software package Minitab 18 can be downloaded from the student portal. This can be accessed from the web page for Student IT services: [http://students.mq.edu.au/it\\_services/](http://students.mq.edu.au/it_services/). For students with Mac computers, iLab can be used to access Minitab. Information on using iLab can also be found on the Student IT services web page.

Recommended textbook used in this unit:

- Modern Statistics: An introduction, Don McNeil and Jenny Middledorp (ISBN 9781486007011). This can be purchased in hard copy from, for example, the Coop Bookshop or in e-format (ISBN 9781486022120, access details to be provided in class).

Other recommended reading:

- Introduction to the Practice of Statistics, Moore, D.S. and McCabe, G. P (W.H. Freeman)
- Statistics without Tears by Rowntree (Penguin)
- Mind on Statistics by Utts & Heckard (Thomson, 2004)
- Elementary Statistics by Johnson & Kuby (Thomson, 2007)
- Statistics: The Art & Science of Learning from Data by Agresti & Franklin (Prentice Hall, 2007)
- The Statistical Sleuth by Ramsey and Schafer (Duxbury, 2002)

## Technology Used and Required

iLearn, (which is a version of Moodle) is used for delivery of STAT670 course material and can

be accessed at: <http://ilearn.mq.edu.au>

## Unit Schedule

WEEK	LECTURE TOPIC	IN-CLASS ASSESSMENT
1	Introduction to statistics, Graphing data	<b>Online Quiz</b> [10 marks] <ul style="list-style-type: none"> <li>• Due in week 4</li> <li>• Topics: modules 1 and 2, Minitab</li> </ul> <b>Mid-semester exam</b> [20 marks] <ul style="list-style-type: none"> <li>• Due in week 7</li> <li>• Duration: 45 minutes</li> <li>• Topics: modules 1 and 2</li> </ul>
2	Numerical summaries	
3	The Normal distribution	
4	Distribution of means and proportions	
5	Confidence intervals	
6	More on populations and samples. Review of Modules 1, 2	
7	One sample hypothesis test for a population mean <i>2 wks break</i>	<b>Statistical report</b> [20 marks] <ul style="list-style-type: none"> <li>• Due in week 12</li> <li>• Topics: modules 3 and 4, Minitab</li> </ul>
8	Hypothesis tests for comparing population means	
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	
12	Chi-squared test of independence	

### SGTA and practical activities by week:

WEEK	LECTURE	SGTA MATERIAL TO BE COVERED	PRACTICAL MATERIAL TO BE COVERED
1	L1	T1: Intro	P1: Intro
2	L2	T2: on L1	P2: on L1
3	L3	T3: on L2	P3: on L2
4	L4	T4: on L3	P4: on L3
5	L5	T5: on L4	P5: on L4
6	L6	T6: on L5	P6: on L5
7	L7	T7: on L6	-
8	L8	T8: on L7	P8: on L7
9	L9	T9: on L8	P9: on L8
10	L10	T10: on L9	P10: on L9



11	L11	T11: on L10	P11: on L10
12	L12	T12: on L11	P12: on L11
13	L13	T13: on L12	P13: on L12

## Learning and Teaching Activities

### Lectures

Lectures begin in Week 1. Copies of the lecture slides will be made available via iLearn. The lectures for stat170 students are recorded and will be available on iLearn. Students need to work through a lecture each week of semester to keep on top of the material.

### SGTA material

Each SGTA (T1 to T13) is based on work from the previous week's lecture. STAT670 students should work through T1 to T13 according to the Unit Schedule shown above. The aim of this work is to practise techniques and understand concepts learned in lectures. STAT670 students should keep in mind that 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. SGTA material will be made available via iLearn.

### Practicals

Practical worksheets, P1 to P13 will be available on iLearn and must be worked through according to the Unit Schedule. During these sessions students will be introduced to Minitab18 which is a dedicated statistical package. Every week throughout the semester students will be required to work through practical material that teaches them how to apply techniques learned during lectures by using Minitab. The weekly practical material is based on work from the previous week's lecture. Practical material, and the required Minitab datasets, will be made available via iLearn. For students with PCs the statistical software package Minitab 18 can be downloaded from: the student portal. This can be accessed from the web page for Student IT services: [http://students.mq.edu.au/it\\_services/](http://students.mq.edu.au/it_services/). For students with Mac computers, iLab can be used to access Minitab. Information on using iLab can also be found on the Student IT services web page.

### Numeracy Centre

The Numeracy Centre exists to help students who are experiencing difficulties with numeracy-based subjects such as STAT670. Any student who lacks the knowledge of mathematics needed for STAT670 is encouraged to seek the help of the Centre. 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.

### Computing Laboratories

Minitab will be used in practical sessions and for completing assessment tasks. The statistical report and quizzes can be completed in the computing labs. 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 \(https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central\)](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 \(https://students.mq.edu.au/support/study/student-policy-gateway\)](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 \(https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central\)](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 published on platform other than [eStudent](#), (eg. iLearn, Coursera etc.) 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) or if you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@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)

If you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@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

### 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

- Interpret statistical results and write a statistics report based on the results of a statistical analysis.
- Identify and apply appropriate statistical methods to address a range of practical problems.

### 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**

- Be able to check the assumptions underlying the statistical models; carry out a statistical analysis and draw conclusions from the results of data analysis.
- Interpret statistical results and write a statistics report based on the results of a statistical analysis.
- Identify and apply appropriate statistical methods to address a range of practical problems.

## **Assessment tasks**

- Mid-semester Exam
- Statistical Report
- Final Examination

## **Learning and teaching activities**

- Lectures begin in Week 1. Copies of the lecture slides will be made available via iLearn. The lectures for stat170 students are recorded and will be available on iLearn. Students need to work through a lecture each week of semester to keep on top of the material.
- Each SGTA (T1 to T13) is based on work from the previous week's lecture. STAT670 students should work through T1 to T13 according to the Unit Schedule shown above. The aim of this work is to practise techniques and understand concepts learned in lectures. STAT670 students should keep in mind that 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. SGTA material will be made available via iLearn.
- Practical worksheets, P1 to P13 will be available on iLearn and must be worked through according to the Unit Schedule. During these sessions students will be introduced to Minitab18 which is a dedicated statistical package. Every week throughout the semester students will be required to work through practical material that teaches them how to apply techniques learned during lectures by using Minitab. The weekly practical material is based on work from the previous week's lecture. Practical material, and the required Minitab datasets, will be made available via iLearn. For students with PCs the statistical software package Minitab 18 can be downloaded from: the student portal. This can be

accessed from the web page for Student IT services: [http://students.mq.edu.au/it\\_services/](http://students.mq.edu.au/it_services/). For students with Mac computers, iLab can be used to access Minitab. Information on using iLab can also be found on the Student IT services web page.

- The Numeracy Centre exists to help students who are experiencing difficulties with numeracy-based subjects such as STAT670. Any student who lacks the knowledge of mathematics needed for STAT670 is encouraged to seek the help of the Centre. 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.
- Minitab will be used in practical sessions and for completing assessment tasks. The statistical report and quizzes can be completed in the computing labs. 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.

## 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:

### Assessment task

- Mid-semester Exam

## 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

- Manipulate, classify and summarise different types of data both graphically and

numerically.

- Deeply understand and apply appropriate statistical techniques for analysis of various types of data.
- Use Minitab to organise, manipulate, summarise and analyse data.
- Be able to check the assumptions underlying the statistical models; carry out a statistical analysis and draw conclusions from the results of data analysis.
- Interpret statistical results and write a statistics report based on the results of a statistical analysis.
- Identify and apply appropriate statistical methods to address a range of practical problems.
- Have a deep understanding of the differences between one-sample and two-sample statistical tests and be able to apply the tests in statistical analysis.

## Assessment tasks

- iLearn Quiz
- Mid-semester Exam
- Statistical Report
- Final Examination

## Learning and teaching activities

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- Minitab will be used in practical sessions and for completing assessment tasks. The statistical report and quizzes can be completed in the computing labs. 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.

## 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

- Deeply understand and apply appropriate statistical techniques for analysis of various types of data.
- Use Minitab to organise, manipulate, summarise and analyse data.
- Be able to check the assumptions underlying the statistical models; carry out a statistical analysis and draw conclusions from the results of data analysis.
- Interpret statistical results and write a statistics report based on the results of a statistical analysis.
- Identify and apply appropriate statistical methods to address a range of practical problems.
- Have a deep understanding of the differences between one-sample and two-sample

statistical tests and be able to apply the tests in statistical analysis.

## Assessment tasks

- iLearn Quiz
- Mid-semester Exam
- Statistical Report
- Final Examination

## Learning and teaching activities

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- Minitab will be used in practical sessions and for completing assessment tasks. The



statistical report and quizzes can be completed in the computing labs. 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.

## 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

- Deeply understand and apply appropriate statistical techniques for analysis of various types of data.
- Use Minitab to organise, manipulate, summarise and analyse data.
- Be able to check the assumptions underlying the statistical models; carry out a statistical analysis and draw conclusions from the results of data analysis.
- Interpret statistical results and write a statistics report based on the results of a statistical analysis.
- Identify and apply appropriate statistical methods to address a range of practical problems.
- Have a deep understanding of the differences between one-sample and two-sample statistical tests and be able to apply the tests in statistical analysis.

### Assessment tasks

- Mid-semester Exam
- Statistical Report
- Final Examination

### Learning and teaching activities

- Lectures begin in Week 1. Copies of the lecture slides will be made available via iLearn. The lectures for stat170 students are recorded and will be available on iLearn. Students need to work through a lecture each week of semester to keep on top of the material.
- Each SGTA (T1 to T13) is based on work from the previous week's lecture. STAT670

students should work through T1 to T13 according to the Unit Schedule shown above.

The aim of this work is to practise techniques and understand concepts learned in lectures. STAT670 students should keep in mind that 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. SGTA material will be made available via iLearn.

- Practical worksheets, P1 to P13 will be available on iLearn and must be worked through according to the Unit Schedule. During these sessions students will be introduced to Minitab18 which is a dedicated statistical package. Every week throughout the semester students will be required to work through practical material that teaches them how to apply techniques learned during lectures by using Minitab. The weekly practical material is based on work from the previous week's lecture. Practical material, and the required Minitab datasets, will be made available via iLearn. For students with PCs the statistical software package Minitab 18 can be downloaded from: the student portal. This can be accessed from the web page for Student IT services: [http://students.mq.edu.au/it\\_services/](http://students.mq.edu.au/it_services/). For students with Mac computers, iLab can be used to access Minitab. Information on using iLab can also be found on the Student IT services web page.
- The Numeracy Centre exists to help students who are experiencing difficulties with numeracy-based subjects such as STAT670. Any student who lacks the knowledge of mathematics needed for STAT670 is encouraged to seek the help of the Centre. 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.
- Minitab will be used in practical sessions and for completing assessment tasks. The statistical report and quizzes can be completed in the computing labs. 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.

## 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

- Manipulate, classify and summarise different types of data both graphically and numerically.
- Interpret statistical results and write a statistics report based on the results of a statistical analysis.
- Identify and apply appropriate statistical methods to address a range of practical problems.

## Assessment tasks

- iLearn Quiz
- Mid-semester Exam
- Statistical Report
- Final Examination

## Learning and teaching activities

- Lectures begin in Week 1. Copies of the lecture slides will be made available via iLearn. The lectures for stat170 students are recorded and will be available on iLearn. Students need to work through a lecture each week of semester to keep on top of the material.
- Each SGTA (T1 to T13) is based on work from the previous week's lecture. STAT670 students should work through T1 to T13 according to the Unit Schedule shown above. The aim of this work is to practise techniques and understand concepts learned in lectures. STAT670 students should keep in mind that 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. SGTA material will be made available via iLearn.
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## 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 and teaching activities**

- Each SGTA (T1 to T13) is based on work from the previous week's lecture. STAT670 students should work through T1 to T13 according to the Unit Schedule shown above. The aim of this work is to practise techniques and understand concepts learned in lectures. STAT670 students should keep in mind that 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. SGTA material will be made available via iLearn.