BUSA8000
Techniques in Business Analytics
Session 1, In person-scheduled-weekday, North Ryde 2023

Department of Actuarial Studies and Business Analytics

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General Information

Unit convenor and teaching staff
Unit Convenor
Lin Han
lin.han@mq.edu.au

Credit points
10

Prerequisites
ECON6034 or ECON634 or admission to MBusAnalytics or MActPrac

Corequisites

Co-badged status

Unit description
This unit develops some of the core skills needed for the practice of modern business analytics. Statistical inference and associated statistical computing will be covered along with an introduction to analytical techniques needed for working with both structured and unstructured data. The reporting of the results from quantitative style research will also be studied.

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:

ULO1: Articulate the importance and application of data in a variety of contexts.
ULO2: Apply methods for handling data in R.
ULO3: Implement statistical learning algorithms in R.
ULO4: Apply appropriate statistical methods/models, and perform analysis on various types of data and interpret the result.
ULO5: Understand and apply the principles of statistical inference.

General Assessment Information
Late Assessment Submission Penalty (written assessments)
Assessment Tasks

<table>
<thead>
<tr>
<th>Name</th>
<th>Weighting</th>
<th>Hurdle</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online Quiz 1</td>
<td>15%</td>
<td>No</td>
<td>Week 4</td>
</tr>
<tr>
<td>Report</td>
<td>30%</td>
<td>No</td>
<td>Week 6</td>
</tr>
<tr>
<td>Online Quiz 2</td>
<td>15%</td>
<td>No</td>
<td>Week 10</td>
</tr>
<tr>
<td>Group Project</td>
<td>40%</td>
<td>No</td>
<td>Week 13</td>
</tr>
</tbody>
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**Online Quiz 1**

Assessment Type: Quiz/Test  
Indicative Time on Task: 5 hours  
Due: Week 4  
Weighting: 15%

Students will be given a dataset and required to perform various calculations based on the techniques taught in classes.

On successful completion you will be able to:
- Apply methods for handling data in R.
- Implement statistical learning algorithms in R.

**Report**

Assessment Type: Case study/analysis  
Indicative Time on Task: 15 hours  
Due: Week 6  
Weighting: 30%

Students will be presented with a selection of case studies and given a report scope. Details will be provided on iLearn.

On successful completion you will be able to:
• Articulate the importance and application of data in a variety of contexts.
• Apply methods for handling data in R.
• Implement statistical learning algorithms in R.

Online Quiz 2
Assessment Type 1: Quiz/Test
Indicative Time on Task 2: 5 hours
Due: Week 10
Weighting: 15%

Students will complete some multiple choice and/or short answer questions.

On successful completion you will be able to:
• Apply appropriate statistical methods/models, and perform analysis on various types of data and interpret the result.
• Understand and apply the principles of statistical inference.

Group Project
Assessment Type 1: Project
Indicative Time on Task 2: 20 hours
Due: Week 13
Weighting: 40%

Students will work on a group project.

On successful completion you will be able to:
• Apply appropriate statistical methods/models, and perform analysis on various types of data and interpret the result.
• Understand and apply the principles of statistical inference.

1 If you need help with your assignment, please contact:
• the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
• the Writing Centre for academic skills support.

2 Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation
Delivery and Resources

Delivery
Please refer to iLearn for details. It is the responsibility of individual students to stay up to date with the unit material.

Recommended Texts
Lecture Notes are the required materials and will be posted on the website before the lectures.

Relevant references will be provided in Lecture Notes as recommended materials. Some references or recommended reading materials will be introduced whenever appropriate. Please refer to iLearn for details.

Technology Used and Required

Laptop
A laptop and access to the internet are needed to obtain course information, view recorded lectures and download teaching materials from the unit website.

Software
This unit does use Python. Whilst it is not strictly necessary that students have any background in using Python, it will certainly be beneficial.

Knowledge of Mathematics and Statistics
A background in basic mathematics and statistics is assumed. Students entering the unit should be familiar with basic calculus, as well as concepts such as expected value, variance, and standard deviation.

Policies and Procedures
Macquarie University policies and procedures are accessible from Policy Central (https://policies.mq.edu.au). 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
- Assessment Procedure
- Complaints Resolution Procedure for Students and Members of the Public
- Special Consideration Policy

Students seeking more policy resources can visit Student Policies (https://students.mq.edu.au/su...
It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

To find other policies relating to Teaching and Learning, visit Policy Central (https://policies.mq.edu.au) and use the search tool.

**Student Code of Conduct**

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/admin/other-resources/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 or if you are a Global MBA student contact globalmba.support@mq.edu.au

**Academic Integrity**

At Macquarie, we believe academic integrity – honesty, respect, trust, responsibility, fairness and courage – is at the core of learning, teaching and research. We recognise that meeting the expectations required to complete your assessments can be challenging. So, we offer you a range of resources and services to help you reach your potential, including free online writing and maths support, academic skills development and wellbeing consultations.

**Student Support**

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

**The Writing Centre**

The Writing Centre provides resources to develop your English language proficiency, academic writing, and communication skills.

- Workshops
- Chat with a WriteWISE peer writing leader
- Access StudyWISE
- Upload an assignment to Studiosity
- Complete the Academic Integrity Module

The Library provides online and face to face support to help you find and use relevant information resources.

- Subject and Research Guides
- Ask a Librarian
Student Services and Support

Macquarie University offers a range of **Student Support Services** including:

- **IT Support**
- **Accessibility and disability support** with study
- **Mental health support**
- **Safety support** to respond to bullying, harassment, sexual harassment and sexual assault
- **Social support including information about finances, tenancy and legal issues**
- **Student Advocacy** provides independent advice on MQ policies, procedures, and processes

**Student Enquiries**

Got a question? Ask us via [AskMQ](https://www.mq.edu.au/about_us/offices_and_units/information_technology/help/), or contact [Service Connect](https://www.mq.edu.au/about_us/offices_and_units/information_technology/help/).

**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](https://www.mq.edu.au/about_us/offices_and_units/information_technology/help/). The policy applies to all who connect to the MQ network including students.