# BUSA8000

## Techniques in Business Analytics

Session 1, Special circumstance 2021

*Department of Actuarial Studies and Business Analytics*

## Contents

**Disclaimer**

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**Notice**

As part of Phase 3 of our return to campus plan, most units will now run tutorials, seminars and other small group activities on campus, and most will keep an online version available to those students unable to return or those who choose to continue their studies online.

To check the availability of face-to-face activities for your unit, please go to timetable viewer. To check detailed information on unit assessments visit your unit's iLearn space or consult your unit convenor.

# General Information

Unit convenor and teaching staff
Unit Convenor
Poon Leung
poon.leung@mq.edu.au

Credit points
10

Prerequisites
ECON6034 or ECON634 or admission to MBusAnalytics

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

Assessment criteria for all assessment tasks will be provided on the unit iLearn site.

It is the responsibility of students to view their marks for each within-session-assessment on iLearn within 20 days of posting. If there are any discrepancies, students must contact the unit convenor immediately. Failure to do so will mean that queries received after the release of final results regarding assessment tasks (not including the final exam mark) will not be addressed.

**Late submissions and extensions**

Tasks 10% or less – No extensions will be granted. Students who have not submitted the task prior to the deadline will be awarded a mark of 0 for the task, except for cases in which an application for special consideration is made and approved.

Tasks above 10% - No extensions will be granted. There will be a deduction of 10% of the total available marks made from the total awarded mark for each 24 hour period or part thereof that the submission is late (for example, 25 hours late in submission – 20% penalty). This penalty does not apply for cases in which an application for special consideration is made and approved. No submission will be accepted after solutions have been posted.

# Assessment Tasks

| Name | Weighting | Hurdle | Due |
| --- | --- | --- | --- |
| Online Quiz 1 | 10% | No | Week 5 |
| Report | 20% | No | Week 6 |
| Online Quiz 2 | 10% | No | Week 9 |
| Final Examination | 60% | No | University Examination Period |

## Online Quiz 1

Assessment Type [1]: Quiz/Test
Indicative Time on Task [2]: 5 hours
Due: **Week 5**
Weighting: **10%**

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 [1]: Case study/analysis
Indicative Time on Task [2]: 15 hours
Due: **Week 6**
Weighting: **20%**

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 9**
Weighting: **10%**

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.

# Final Examination

Assessment Type [1]: Examination
Indicative Time on Task [2]: 20 hours
Due: **University Examination Period**
Weighting: **60%**

An open book two hour online exm will be held in the University Examination Period.

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.

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[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

## Learning and Teaching Activities

The content for each week will comprise of a lecture recording and a 1 hour tutorial. Please visit https://timetables.mq.edu.au/2021/ for more information about classes. Details will also be available on iLearn. It is the responsibility of individual students to stay up to date with the unit material.

### Lectures

A lecture recording will be available at the start of each week. Lecture notes and other related material will be available in the week of the lecture, at the *iLearn* weekly tabs.

### Tutorials

Tutorials are considered compulsory but no marks are allocated. The tutorial schedule will be made available on iLearn.

Students are expected to complete the '*Tutorial Questions*' as a self-directed study activity before attending a tutorial. Where applicable, solutions will be posted at the end of the tutorial.

### Recommended Texts

R for Data Science, Wickham and Grolemund

An Introduction to Statistical Learning, James et al.

Collaborative Statistics, Illowsky and Dean

Note: these are all open-source textbooks and are available freely and legally online.

# Technology Used and Required

## Calculator

A calculator will be required during the *Final Examination*. <u>Note</u>: students are expected to clearly show all steps (working) in their solutions to 'calculation' questions.

Non-programmable calculators with no text-retrieval functionality are permitted. Calculators that have a full alphabet on the keyboard are not permitted. Graphics calculators are not permitted. Calculators need the following minimum functionality: $x^y$ or ^, *1/x* and *log* or *ln* functions, and a memory. Non-programmable financial calculators are permitted but it is not a requirement to use a financial calculator.

Students are assumed to already be familiar with the basic operation of their calculator prior to the start of this unit.

## Computing

Prior to the start of this unit, students are expected to be familiar at least with the basic operation of their computing device.

## Software

This unit does use R in its first portion. Whilst it is not strictly necessary that students have any background using R, it will certainly be beneficial.

## Knowledge of Mathematics and Statistics

A background of basic mathematics and statistics is assumed. Students entering the course 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
- Grade Appeal Policy
- Complaint Management 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/support/study/policies). 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

# 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 help you improve your marks and take control of your study.

- Getting help with your assignment
- Workshops
- StudyWise
- 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

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

If you are a Global MBA student contact 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/.

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.