



# MMBA8160

## Information and Decision Analysis

MGSM term 1, Weekday attendance, North Ryde 2020

*Department of Actuarial Studies and Business Analytics*

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## General Information

Unit convenor and teaching staff

Brad Smith

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Credit points

10

Prerequisites

Admission to MBA or PGDipMgt or GradDipMgt or MSocEntre or GradCertSocEntre

Corequisites

Co-badged status

Unit description

This unit provides quantitative/statistical research tools, data analysis and computer modelling necessary to help the modern business manager with strategic planning, tactical decision-making, and resolving business problems. It also covers the efficient use of all resources to enhance management effectiveness. The overall aim is to improve the reliability of decisions made and to develop better strategy through the use of scientific method.

## 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:** Evaluate disparate data and information using appropriate quantitative tools to evidence and formulate well-informed and robust strategic business decisions.

**ULO2:** Use appropriate quantitative research tools, evaluate and synthesise quantitative data to help assess the implications of strategic decisions from a whole of entity perspective, and across a wide spectrum of stakeholders.

**ULO3:** Critically assess and integrate ethical, social and environmental factors into business decision-making and management practices that are also commercially viable from a quantitative point of view.

**ULO4:** Apply a range of research tools and models of business performance and productivity to measure and track sustainable value creation across organisational

processes and projects.

## Assessment Tasks

### Coronavirus (COVID-19) Update

Assessment details are no longer provided here as a result of changes due to the Coronavirus (COVID-19) pandemic.

Students should consult [iLearn](#) for revised unit information.

[Find out more about the Coronavirus \(COVID-19\) and potential impacts on staff and students](#)

## General Assessment Information

Title	Description	Weighting	Hurdle?	Task type	Due date	Actions
Individual assignment	<p><b>Format:</b> Question set</p> <p>In order to understand properly the material covered in the course, it is necessary for you to practice what you have learned. The individual assignment (and exercises) provides an opportunity for you to gain experience in the techniques and concepts. There is only one individual assignment that you should do by yourself. It covers what you have learned in the lectures up to and including session 5. The solutions to this assignment will be discussed during the final lecture and also placed on the web site.</p> <p><b><u>Extensions and penalties</u></b></p> <p>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.</p>	20%	No	Question set	Session 6 of class	

Title	Description	Weighting	Hurdle?	Task type	Due date	Actions
In-class test	<p><b>Duration:</b> 1 hour</p> <p><b>Format:</b> Open book test</p> <p>The in-class test, held under exam conditions during the class session, will include the material covered in session 1 - 5. You can use books, notes and a non-programmable calculator. It will consist of fifteen multiple choice questions and four short answer/calculation type questions. Notebook computers, iPads, tablets, PDAs and similar are not allowed. It is not necessary to pass this in-class test to pass the unit.</p>	20%	No	Examination (Open Book)	Session 8 of class	
Final examination	<p><b>Duration:</b> 3 hours plus 10 minutes reading time</p> <p><b>Format:</b> Open book final examination</p> <p>You are expected to present yourself for examination at the time and place designated in the MGSM examination timetable. The timetable will be available on 22 January 2020 at <a href="https://students.mgsm.edu.au/sydney-students/units/exams/">https://students.mgsm.edu.au/sydney-students/units/exams/</a>.</p> <p>The exam format will be <b>open book</b>, and will consist of a combination of multiple choice, short answer and problem solving style questions. More details on the exam will be provided in class. The final examination will cover all topics dealt within the unit. You can use books, notes and a non-programmable calculator. Notebook computers, iPads, tablets, PDAs and similar are not allowed.</p>	60%	No	Final Examination	Exam week: 16 - 21 March 2020	
<b>Total:</b>		<b>100%</b>				

## Delivery and Resources

### Coronavirus (COVID-19) Update

Any references to on-campus delivery below may no longer be relevant due to COVID-19.

Please check here for updated delivery information: [https://ask.mq.edu.au/account/pub/display/unit\\_status](https://ask.mq.edu.au/account/pub/display/unit_status)

## Prescribed Textbook

Croucher, John. S. (2018). Quantitative Analysis for Management, 6th edition. McGraw-Hill Education. ISBN: 9781760425029

**You should bring this textbook to all lectures as it is also a workbook.**

**Please note:** Students should only attain the 6th edition of this textbook, which is the only edition this class will be taught from. Furthermore, this course relies heavily on the learning material provided in the textbook (which also acts as an exercise book for in-class demonstration and activities). It is highly advised that students attain the required textbook as soon as possible and familiarise themselves with the textbook material, especially before the start of each class session for sessions with specific allocated chapters (which is made available in the unit schedule below as well as the class iLearn page).

## Where to purchase the textbook?

**McGraw Hill Education Australia – Online store:** This textbook is also available for order via the publisher's online store. For information on textbook prices and online ordering, please refer to the McGraw Hill Education Australia online store at <https://www.mheducation.com.au/quantitative-analysis-for-management-6e-9781760425029-aus>

## Additional Recommended Text

The text listed below are optional only. It is not compulsory to attain a copy.

- Croucher, John S. (2016). Introductory mathematics and statistics for business (6th edition- revised). McGraw-Hill.
- Render, B., Stair, R., Hanna, M.E. and Hale, T.S. (2015). Quantitative analysis for management (12th edition). Pearson.
- Bowerman, B.L., O'Connell, R. and Murphree, E. (2013). Business statistics in practice (7th edition). McGraw-Hill

## Calculator

A basic calculator with specific keys shown below is required in this unit since it will be used in all class tests and final exam. You may find it useful, but it is not necessary, to have a statistical calculator that has in-built statistical functions. There are several types of these:

- The lowest level statistical calculator has function keys such as the mean and standard deviation but no other statistical function keys.
- The next level above also has function keys for correlation and linear regression. An example is one of the Casio *fx* series such as the 82 or 100 series, but there are many others.

In any case, your calculator should include the following keys:

$x!$      $e^x$      ${}^nC_r$

You need to bring your calculator to every session class.

## Access to Technology

Access to a personal computer and internet connection is required to access learning material/resources online on Macquarie University's online learning management system called iLearn.

Students will also be required to gain access to statistical software called Minitab 16. While the text refers to Minitab 16, version 17 & 18 may be used. Further instructions are provided in the class iLearn page.

## iLearn - Your class online learning resources page

The class iLearn page for this unit is located at: <https://ilearn.mq.edu.au/>. You must be enrolled in this class to see the class iLearn page.

As an enhancement to this unit, there is a series of multiple choice and short answer questions that you may try on iLearn, Macquarie University's online learning management system. Answers will also be provided on iLearn. To access these, just log in via the link above.

The purpose of these questions is for practice only. They will not be used for assessment purposes but is hoped that you will attempt them for your own benefit.

For any enquiries regarding difficulties accessing these questions, please contact Mr Ariel Alcantara on email at: [ariel.alcantara@mq.edu.au](mailto:ariel.alcantara@mq.edu.au).

## Lecture Slides

Lecture slides will be provided to students only in soft-copy format via the class iLearn page.

## Allocated Supplementary Readings

There are no Allocated Supplementary Readings (journal articles and case studies) set for this class. Students are required to attain the required text listed above and bring to every class session.

## Unit Schedule

### Coronavirus (COVID-19) Update

The unit schedule/topics and any references to on-campus delivery below may no longer be relevant due to COVID-19. Please consult [iLearn](#) for latest details, and check here for updated delivery information: [https://ask.mq.edu.au/account/pub/display/unit\\_status](https://ask.mq.edu.au/account/pub/display/unit_status)

**Students are required to attend all classes.** Please only attend the class you are enrolled in as reflected in your e-Student account. This unit will be presented over 10 sessions as follows (*The proposed program might be subject to some minor changes as the term progresses (TBA)*).

**Class sessions are scheduled from:** 6pm to 10pm of every Wednesday starting from 08 January 2020 (session 1) until 11 March 2020 (session 10).

**Final exam week:** 16 - 21 March 2020

Session	Topics and textbook chapters covered
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1	<p>Introduction to statistics - ch 1.1</p> <p>Sampling procedures - ch 1.2 - 1.3</p> <p>Summarising data - ch 1.4 - 1.7</p> <p>Measures of centre - ch 1.8 - 1.14</p> <p>Other statistical measures - ch 1.13 - 1.14, 1.16, 1.18 - 1.19</p> <p>Measures of variation - ch 2.1 - 2.7</p>
2	<p>Introduction to statistical distributions and discrete probability distributions - ch 10.1 - 10.11</p> <p>Random variables and discrete probability distributions expected values, risk and chance - ch 3.13 - 3.15</p>
3	<p>Normal distribution - ch 2.13</p> <p>Areas under the normal curve - ch 2.14 - 2.21</p> <p>Estimation - ch 3.1 - 3.3</p> <p>Confidence intervals - ch 3.4 - 3.10</p>
4	<p>Correlation - ch 4.1 - 4.8</p> <p>Time series models - ch 4.9 - 4.11</p> <p>Regression models - ch 4.12 - 4.19</p> <p>Exponential smoothing models - ch 4.23 - 4.28</p> <p>Seasonal data - ch 4.29 - 4.30</p> <p>Lag effects - ch 4.31 - 4.33</p>
5	<p>Categorical data - ch 5.1 - 5.3</p> <p>Single variable data - ch 5.4 - 5.7</p> <p>Contingency tables - ch 5.8 - 5.10</p>
6	<p>Introduction to hypothesis testing - ch 6.1 - 6.5</p> <p>One-sample tests - ch 6.7 - 6.12</p> <p>Using Minitab - ch 6.13 - 6.16</p>
7	<p>Analysis of variance (one-way) - ch 8.1 - 8.3, 8.5</p> <p>Multiple comparisons - ch 8.8 - 8.9</p> <p>Analysis of variance (two-way) - ch 8.10</p> <p>Using Minitab - ch 8.11</p> <p>Visual displays - ch 8.13 - 8.19</p>

8	Odds and probability - ch 9.1 - 9.3 Odds ratios - ch 9.4 Binary logistics regression - Single covariate - ch 9.5 - 9.7 Using Minitab - ch 9.8 - 9.9 Testing of parameters - ch 9.10 - 9.12 Binary logistic regression - Multiple covariate - ch 9.13
9	Queueing systems - ch 12.1 Definitions and parameters - ch 12.2 - 12.9 A simple queue - ch 12.10 Calculation of probabilities and outcomes - ch 12.11, 12.13 - 12.14 Multiple server queues - ch 12.16 - 12.22
10	General course summary Revision questions Outline of the final examination

## 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.*)

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> 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>) 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](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.

## Changes since First Published

Date	Description
03/	Updated due date information and changed from "weeks" to "sessions". Also updated
01/	MGSM Exam Timetable release to 2020 Term 1 date. Finally, updated link to textbook
2020	to match the prescribed textbook edition and ISBN.