



# MMBA8113

## Big Data and Decision Making

Term 1, Online-scheduled-In person assessment, North Ryde 2022

*Department of Actuarial Studies and Business Analytics*

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## General Information

Unit convenor and teaching staff  
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Credit points  
10

Prerequisites  
MGSM960 or MMBA8160

Corequisites

Co-badged status

### Unit description

This unit is a bridge between business and information technology and will equip students with knowledge and skills required to lead and manage big data and data science projects for organisations. Specifically, the unit focuses on data science development practices and the underlying big data applications, on both strategic and operational levels.

More importantly, this unit focuses on transforming business processes through big data and data science, the impact on companies' IT infrastructure, the use of resources to conduct data science workstreams, and identifying the necessary technological underpinnings of big data ecosystem.

The unit is especially tailored for MBA students and business managers with a primary focus on managerial discussions surrounding big data employment and decision making, using big data and analytics insights within large companies. The technical aspect of the unit is on a level comprehensible and applicable to MBA students who do not necessarily possess technical training in big data software applications.

## 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:** Develop a broad understanding and knowledge of the Big Data ecosystem and its applications within the context of managerial decision-making processes.

**ULO2:** Explore Data Science theories, methodologies and tools and their practical

applications to solve real life business problems.

**ULO3:** Use tangible and intangible resources to gain insights from large and versatile sets of data and understand the additional requirements needed.

**ULO4:** Apply and/or customise big data and data science solutions to various business contexts.

## General Assessment Information

### Late submissions of assessments

Unless a Special Consideration request has been submitted and approved, no extensions will be granted. There will be a deduction of 10% of the total available assessment-task marks made from the total awarded mark for each 24-hour period or part thereof that the submission is late. Late submissions will only be accepted up to 96 hours after the due date and time.

No late submissions will be accepted for timed assessments – e.g., quizzes, online tests.

**Table 1: Penalty calculation based on submission time**

Submission time after the due date (including weekends)	Penalty (% of available assessment task mark)	Example: for a non-timed assessment task marked out of 30
< 24 hours	10%	10% x 30 marks = 3-mark deduction
24-48 hours	20%	20% x 30 marks = 6-mark deduction
48-72 hours	30%	30% x 30 marks = 9-mark deduction
72-96 hours	40%	40% x 30 marks = 12-mark deduction
> 96 hours	100%	Assignment won't be accepted

### Special Consideration

To request an extension on the due date/time for a timed or non-timed assessment task, you must submit a Special Consideration application. An application for Special Consideration does not guarantee approval.

The approved extension date for a student becomes the new due date for that student. The late submission penalties above then apply as of the new due date

## Assessment Tasks

Name	Weighting	Hurdle	Due
<a href="#">Group Assignment</a>	30%	No	Please refer to iLearn
<a href="#">Class contribution</a>	10%	No	During the term
<a href="#">Final Examination</a>	30%	No	University Exam Period
<a href="#">Individual Assignment</a>	30%	No	Please refer to iLearn

### Group Assignment

Assessment Type <sup>1</sup>: Project

Indicative Time on Task <sup>2</sup>: 20 hours

Due: **Please refer to iLearn**

Weighting: **30%**

The group will be required to produce a report of no more than 6000 words and present the findings to the class.

On successful completion you will be able to:

- Develop a broad understanding and knowledge of the Big Data ecosystem and its applications within the context of managerial decision-making processes.
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- Apply and/or customise big data and data science solutions to various business contexts.

### Class contribution

Assessment Type <sup>1</sup>: Participatory task

Indicative Time on Task <sup>2</sup>: 5 hours

Due: **During the term**

Weighting: **10%**

Students will be required to participate in in-class discussions.

On successful completion you will be able to:

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- Apply and/or customise big data and data science solutions to various business contexts.

## Final Examination

Assessment Type <sup>1</sup>: Examination

Indicative Time on Task <sup>2</sup>: 10 hours

Due: **University Exam Period**

Weighting: **30%**

A closed book three hour examination will be held during the University Examination Period.

On successful completion you will be able to:

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- Apply and/or customise big data and data science solutions to various business contexts.

## Individual Assignment

Assessment Type <sup>1</sup>: Modelling task

Indicative Time on Task <sup>2</sup>: 20 hours

Due: **Please refer to iLearn**

Weighting: **30%**

Individual assignments are based on a number of analytics case studies given in class with their relevant datasets. Students will be given a choice to select one of these case studies and perform suitable predictive modelling techniques, including exploratory analysis, modelling and visualisation. Students will be required to submit a report (approx. 5 – 6 pages in length) highlighting the application of insights, concepts, and relevant techniques used to perform the case study outcomes.

On successful completion you will be able to:

- Develop a broad understanding and knowledge of the Big Data ecosystem and its applications within the context of managerial decision-making processes.
- Explore Data Science theories, methodologies and tools and their practical applications to solve real life business problems.
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- Apply and/or customise big data and data science solutions to various business contexts.

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<sup>1</sup> 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.

<sup>2</sup> 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

Recommended Textbook:

1. Big Data MBA (2016), Bill Schmarzo. Wiley Publishing, ISBN (Hardcover): 978-1119181118

Optional:

2. HBR Guide to Data Analytics Basics for Managers (2018), Harvard Business Review Press, ISBN (Hardcover): 978-1633694286

3. Data Science for Business: What You Need to Know about Data Mining and Data-Analytic Thinking (2013), Foster Provost, O'Reilly Media, Inc, ISBN (Hardcover): 978-1449361327

Where to purchase textbook?

**Springer Global Website – 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 Springer Global Website online store at <https://www.springer.com/gp/book/9783319135021>.

**eBook disclaimer for open book exams:** As notebook computers, iPads, tablets, PDAs and similar are **not allowed** in the exam room, the eBook version available for this textbook which would require a student to bring in a notebook computer, iPad, tablet, PDA or a similar device in order to view it, will **not be allowed** in the exam room. Students are advised to only get the hard copy version of the required text.

**Disclaimer:** MGSM does not take responsibility for the stock levels of required textbooks from preferred retail outlets and other book retailers. While we advise our preferred book retail outlet, The Co-op Bookshop, of our maximum expected number of students purchasing specific required text each term, The Co-op Bookshop and other book retailers will make their own judgement in regard to their physical holding stock levels. To prevent disappointment if a textbook is out-of-stock, we highly advise students to order their textbooks as early as possible, or if the required textbook is currently out-of-stock, place an order with the book retailer as soon as possible so that these book retailers can monitor demand and supply, and adjust their stock orders accordingly.

**Further sources of information:**

### **Top academic management and information systems outlets (some suggestions)**

- Harvard business review
- MIT Sloan Review
- MIS Quarterly
- Information Sciences
- Information Systems Research

### **Useful academic databases (DB), search engines (SE), and publishers (PB)**

- Emerald Insight (DB)
- Elsevier (DB)
- Scopus (SE)
- Web of Science (SE)
- Wiley (PB)
- Springer (PB)

### **Useful Industry databases**

- IBISWorld
- Factiva
- EBSCO Business Searching Interface

### 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.

### 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.

### Lecture Slides

Lecture Slides will be provided to students only in soft-copy format via the class iLearn page. You must be enrolled in this class to see these items in the class iLearn page.

### Readings

Readings are provided to students only in soft-copy format via the class iLearn page. You must be enrolled in this class to see these items in the class iLearn page.

## Unit Schedule

Session	Topics
1	Introduction to Big Data & Data Science
2	Big Data, Best Practices & Managerial Decisions
3	Fundamentals of Statistics
4	Exploratory Data Analysis
5	Introduction to Predictive Modelling – part 1
6	Introduction to Predictive Modelling – part 2
7	Visualisation & Story Telling
8	Big Data Architecture, Operationalisation & Model Management
9	Putting it Altogether – Big Data Business Strategy Roadmap
10	Group Assignment Presentation



## Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central \(https://policies.mq.edu.au\)](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 \(https://students.mq.edu.au/support/study/policies\)](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 \(https://policies.mq.edu.au\)](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](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)

## 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 Enquiries

Got a question? Ask us via [AskMQ](#), or contact [Service Connect](#).

## 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.