MMBA8113

Big Data and Decision Making

Term 1, Special circumstances 2021

Department of Actuarial Studies and Business Analytics

Contents

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
Nejhdeh Ghevondian
nejhdeh.ghevondian@mq.edu.au

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

Checking your grades

Assessment criteria for all assessment tasks will be posted on the unit's iLearn site. It is the responsibility of students to view their marks for each within session assessment on iLearn within 20 working 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 marks (not including the final exam mark) will not be addressed."

Special Consideration

Macquarie University recognises that students may experience events or conditions that adversely affect their academic performance. If you experience serious and unavoidable difficulties at exam time or when assessment tasks are due, you can consider applying for Special Consideration. The University Policy for Special Consideration is given at https://students.mq.edu.au/study/my-study-program/special-consideration. Where a Special Consideration application is approved, the student may be offered an alternative assessment or may receive a mark based on the percentage mark achieved by the student in one or more other assessment tasks, at the Unit Convenor's discretion.

Extension of time for assignments

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 considereation is made and approved. No submission will be accepted after solutions have been posted.

Assessment Tasks

Name	Weighting	Hurdle	Due
Final Examination	40%	No	University Exam Period
Class contribution	10%	No	21/02/21
Group Assignment and Presentation	35%	No	21/02/21

Name	Weighting	Hurdle	Due
Individual Assignment	15%	No	12/02/21

Final Examination

Assessment Type [1]: Examination
Indicative Time on Task [2]: 15 hours
Due: **University Exam Period**
Weighting: **40%**

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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- Use tangible and intangible resources to gain insights from large and versatile sets of data and understand the additional requirements needed.
- Apply and/or customise big data and data science solutions to various business contexts.

Class contribution

Assessment Type [1]: Participatory task
Indicative Time on Task [2]: 5 hours
Due: **21/02/21**
Weighting: **10%**

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

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.
- Use tangible and intangible resources to gain insights from large and versatile sets of data and understand the additional requirements needed.
- Apply and/or customise big data and data science solutions to various business contexts.

Group Assignment and Presentation

Assessment Type [1]: Project
Indicative Time on Task [2]: 20 hours
Due: **21/02/21**
Weighting: **35%**

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.
- Explore Data Science theories, methodologies and tools and their practical applications to solve real life business problems.
- Use tangible and intangible resources to gain insights from large and versatile sets of data and understand the additional requirements needed.
- Apply and/or customise big data and data science solutions to various business contexts.

Individual Assignment

Assessment Type [1]: Modelling task
Indicative Time on Task [2]: 15 hours
Due: **12/02/21**
Weighting: **15%**

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

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

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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

Recommended text

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

Unit Schedule

Session	Day	Topic	Required Readings
1	Day 1 (29/ 01/ 21)	**Module 1: Introduction to Big Data & Data Science**	**Book:** Chapter 1 & 2 **Article:** An Introduction to Big Data – Journal of Financial Service Professionals (2018)
2	Day 1 (29/ 01/ 21)	**Module 2: Big Data, Best Practices & Managerial Decisions**	**Book:** Chapter 1 & 2 **Article:** Implementing big data strategies: A managerial perspective – Business Horizons (2019)
3	Day 2 (30/ 01/ 21)	**Module 3: Fundamentals of Statistics**	**Article:** Are Business Leaders Prepared to Handle the Upcoming Revolution in Business AI (2018)
4	Day 2 (30/ 01/ 21)	**Module 4: Exploratory Data Analysis**	**Article:** How Netflix Used Big Data To Give Us The Programmes We Want[1,2]
5	Day 3 (31/ 01/ 21)	**Module 5: Introduction to Predictive Modelling – part 1**	**Article**: WALMART: How Big Data is Used to Drive Supermarket Performance

Session	Day	Topic	Required Readings
6	Day 3 (31/ 01/ 21)	**Module 6: Introduction to Predictive Modelling – part 2**	**Article:** Facebook language predicts depression in medical records (2018)
7	Day 4 (20/ 02/ 21)	**Module 7: Visualisation & Story Telling**	**Article**: The rising tide of AI & Business Automation: Developing an Ethical Framework (2018) – Business Horizons
8	Day 4 (20/ 02/ 21)	**Module 8: Big Data Architecture, Operationalisation & Model Management**	**Article**: Big Data Analytics in Medicine & Healthcare (2018)
9	Day 5 (21/ 02/ 21)	**Module 9: Putting it Altogether – Big Data Business Strategy Roadmap**	**Article**: An Artificial Intelligence Approach to Financial Fraud Detection under IoT Environment
10	Day 5 (21/ 02/ 21)	**Module 10: Group Assignment Presentation**	

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.e

du.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.