BUSA8090

Data and Visualisation for Business

Session 1, In person-scheduled-weekday, North Ryde 2024

Department of Actuarial Studies and Business Analytics

Contents

Disclaimer

Macquarie University has taken all reasonable measures to ensure the information in this publication is accurate and up-to-date. However, the information may change or become out-dated as a result of change in University policies, procedures or rules. The University reserves the right to make changes to any information in this publication without notice. Users of this publication are advised to check the website version of this publication [or the relevant faculty or department] before acting on any information in this publication.

General Information

Unit convenor and teaching staff
Geng Sun
geng.sun@mq.edu.au

Credit points
10

Prerequisites
BUSA8000 or BUSA8001 or (Admission to MActPrac or MAppStat or MBusAnalytics)

Corequisites

Co-badged status
BUSA7090

Unit description
This unit focuses on the business perspective of data and visualisation, which is complementary but different from the data science and IT perspectives. In contemporary business environments, data visualisation (DV) has evolved beyond static graphs and charts (visual outputs) and is now used for visual data exploration by business decision makers. These non-technical business professionals are using visualisation software tools as 'thinking tools' to explore their problem space, find solutions, explore new opportunities, ask new questions, and innovate business processes and services. In this unit, students will learn about a more effective use of data for business decision making through better data management, improved data quality and data visualisation, including visual data exploration. Students will develop skills necessary to model data, design and implement relational databases, collect, store, and analyse data using SQL, all while using commercial relational database management software. Students will also learn to design and implement data visualisations and visual data exploration environments for business decision makers, using state-of-the art DV tools. Along the way, students will practice ethical and responsible data management and will acquire skills in visual ethics and visual storytelling.

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: Devise programming language code for data analytics and visualisation using a

variety of computer tools.

ULO2: Formulate SQL language approaches to relational database problems.

ULO3: Assemble statistical learning techniques to tackle data science problems.

ULO4: Examine and employ a variety of data visualisation techniques.

ULO5: Evaluate various popular data visualisation solutions.

General Assessment Information

Late Assessment Submission Penalty (written assessments)

Unless a Special Consideration request has been submitted and approved, a 5% penalty (of the total possible mark) will be applied each day a written assessment is not submitted, up until the 7th day (including weekends). After the 7th day, a grade of '0' will be awarded even if the assessment is submitted. Submission time for all written assessments is set at 11.55pm. A 1-hour grace period is provided to students who experience a technical concern. For any late submissions of time-sensitive tasks, such as scheduled tests/exams, performance assessments/presentations, and/or scheduled practical assessments/labs, students need to submit an application for Special Consideration.

Assessment Tasks

Name	Weighting	Hurdle	Due
Final Examination	40%	No	Exam Week
Assignment 1	30%	No	Friday of Week7
Assignment 2	30%	No	Friday of Week11

Final Examination

Assessment Type [1]: Examination
Indicative Time on Task [2]: 20 hours
Due: **Exam Week**
Weighting: **40%**

A closed book two-hour final examination will be held during the University Examination period.

On successful completion you will be able to:

• Devise programming language code for data analytics and visualisation using a variety of computer tools.

- Assemble statistical learning techniques to tackle data science problems.

- Examine and employ a variety of data visualisation techniques.

- Evaluate various popular data visualisation solutions.

Assignment 1

Assessment Type [1]: Programming Task
Indicative Time on Task [2]: 20 hours
Due: **Friday of Week7**
Weighting: **30%**

Practical coding assignment using SQL.

On successful completion you will be able to:
- Devise programming language code for data analytics and visualisation using a variety of computer tools.
- Formulate SQL language approaches to relational database problems.

Assignment 2

Assessment Type [1]: Modelling task
Indicative Time on Task [2]: 20 hours
Due: **Friday of Week11**
Weighting: **30%**

Practical coding assignment using data visualisation packages.

On successful completion you will be able to:
- Devise programming language code for data analytics and visualisation using a variety of computer tools.
- Assemble statistical learning techniques to tackle data science problems.
- Examine and employ a variety of data visualisation techniques.
- Evaluate various popular data visualisation solutions.

---

[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

This unit will cover knowledge in four areas:

1. Data analysis/governance in business (Week1&Week12)

2. Relational database design and management (Week2-Week6)

3. Data visualisation using R (Week7-9)

4. Data visualisation using Tableau (Week 10-12)

A systematic review and revision of all knowledge covered in the semester will be carried out in Week 13.

Three streams are operated for this subject.

Friday 1PM-4PM (Dr Elias Maroun)

Wednesday 9AM-12PM (Dr Geng Sun)

Wednesday 1PM-PM (Dr Geng Sun)

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/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

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, 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/.

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.

Unit information based on version 2024.04 of the Handbook