



COMP8440

Automated Decision Making in Business

Session 1, In person-scheduled-weekday, North Ryde 2025

School of Computing

Contents

| | |
|---|---|
| <u>General Information</u> | 2 |
| <u>Learning Outcomes</u> | 3 |
| <u>General Assessment Information</u> | 3 |
| <u>Assessment Tasks</u> | 4 |
| <u>Delivery and Resources</u> | 6 |
| <u>Unit Schedule</u> | 6 |
| <u>Policies and Procedures</u> | 7 |
| <u>Changes from Previous Offering</u> | 9 |

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General Information

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Credit points

10

Prerequisites

COMP6200

Corequisites

Co-badged status

Unit description

Automation of decision making has been part of AI for a long time. It is becoming more important with the entrenched position of AI in modern life. In this unit students will be exposed to historical, foundational, cognitive, socio-cultural as well as implementational aspects of automatic decision making. Students will evaluate the kinds of decisions that are amenable to automation, the sources of data that are required, and the kinds of systems that can be built to complete the task.

Learning in this unit enhances student understanding of global challenges identified by the United Nations Sustainable Development Goals ([UNSDGs](#)) Industry, Innovation and Infrastructure.

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: Use tangible and intangible resources to understand requirements needed for automated decision making in business

ULO2: Demonstrate effective communication of AI generated decisions with various stakeholders in a business

ULO3: Critically assess the positive and negative socioeconomic consequences and implications of automated decision making in an industry context

ULO4: Evaluate alternate AI technologies for use to support decision making in business.

General Assessment Information

Requirement to Pass this Unit

To pass this unit, you must achieve a total mark equal to or greater than 50%.

Assessment Availability Dates

- Assessment 1: Friday, Week 2
- Assessment 2: Friday, Week 6
- Assessment 3: Friday, Week 9

Late Assessment Submission Penalty

Unless a Special Consideration request has been submitted and approved, a 5% penalty (of the total possible mark of the task) will be applied for each day a written report or presentation 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. The submission time for all uploaded assessments is **11:55 pm**. A 1-hour grace period will be provided to students who experience a technical concern.

For any late submission of time-sensitive tasks, such as scheduled assessments, please apply for [Special Consideration](#).

Assignments where Late Submissions will be accepted:

- Assignment #1 **Yes**, Standard Late Penalty applies.
- Assignment #2: **Yes**, Standard Late Penalty applies.

- Assignment #3: **Yes**, Standard Late Penalty applies.

Special Consideration

The [Special Consideration Policy](#) aims to support students who have been impacted by short-term circumstances or events that are serious, unavoidable and significantly disruptive, and which may affect their performance in assessment. If you experience circumstances or events that affect your ability to complete the assessments in this unit on time, please inform the convenor and submit a Special Consideration request through [Service Connect](#).

Assessment Tasks

| Name | Weighting | Hurdle | Due |
|--|-----------|--------|-----------------------|
| System Evaluation | 35% | No | Week 5: Friday 23:55 |
| Business Rules at work | 35% | No | Week 8: Friday 23:55 |
| Reflective Report | 30% | No | Week 12: Friday 23:55 |

System Evaluation

Assessment Type ¹: Qualitative analysis task

Indicative Time on Task ²: 27 hours

Due: **Week 5: Friday 23:55**

Weighting: **35%**

Evaluate an existing product or system for a given task using available data.

On successful completion you will be able to:

- Use tangible and intangible resources to understand requirements needed for automated decision making in business
- Critically assess the positive and negative socioeconomic consequences and implications of automated decision making in an industry context
- Evaluate alternate AI technologies for use to support decision making in business.

Business Rules at work

Assessment Type ¹: Project

Indicative Time on Task ²: 27 hours

Due: **Week 8: Friday 23:55**

Weighting: **35%**

Design and implement a set of business rules using an open-source rules engine, focusing on how these rules can be applied to automate decision-making processes in a business.

On successful completion you will be able to:

- Use tangible and intangible resources to understand requirements needed for automated decision making in business
- Demonstrate effective communication of AI generated decisions with various stakeholders in a business
- Evaluate alternate AI technologies for use to support decision making in business.

Reflective Report

Assessment Type ¹: Reflective Writing

Indicative Time on Task ²: 21 hours

Due: **Week 12: Friday 23:55**

Weighting: **30%**

A reflective report on the student's experience in the unit and their vision of the impact of automated decision making on industry practice.

On successful completion you will be able to:

- Demonstrate effective communication of AI generated decisions with various stakeholders in a business
- Critically assess the positive and negative socioeconomic consequences and implications of automated decision making in an industry context

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

Classes

Each week includes two hours of lectures and a one-hour practical session. For details of days, times and rooms consult the timetable.

Required and Recommended Texts

All required and recommended readings will be provided as part of the lecture material.

Unit Web Page

The unit web page will be hosted in iLearn. You will need to log in to iLearn using your Student One ID and password. The unit will make use of discussion boards also hosted in iLearn. Please post questions there, they will be monitored by the staff on the unit.

Methods of Communication

We will communicate with you via your university email or through announcements in iLearn. Questions to staff can either be placed on the iLearn discussion board or sent to the unit convenor from your university email address.

Unit Schedule

| Week | Topic |
|------|---|
| 1 | + History of Decision Making |
| 2 | + Impact of AI on Business Decision Making |
| 3 | + Privacy Principles & Automated Decision Making |
| 4 | + Transparency & Accountability |
| 5 | + Computational Foundations of AI for Automated Decision Making + The ZEN Business Rule Engine |
| 6 | + A Closer Look at Business Rules + Business Rule Management Systems |
| 7 | + The Rete Algorithm + Reasoning Methods for Inference in Business Intelligence |
| | RECESS |

| | |
|----|---|
| 8 | + Uncertain Reasoning for Business Rules + ProbLog & Viral Marketing |
| 9 | + AI-powered Descriptive Analytics + Use Case: Querying Data with Natural Language |
| 10 | + AI-powered Diagnostic Analytics + Use Case: Automated Insight from Data |
| 11 | + AI-powered Predictive Analytics + Use Case: Automated Classification Tasks |
| 12 | + AI-powered Prescriptive Analytics + Use Case: Action Recommendation |
| 13 | + Future Trends in Automated Decision Making in Business + Panel Discussion |

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 connect.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 the [Service Connect Portal](#), 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.

Changes from Previous Offering

Semester 1, 2025 will be the first offering of this unit.

Unit information based on version 2025.04 of the [Handbook](#)