In Progress

Please note that this Unit Profile is still in progress. The content below is subject to change.

# COIT20277 *Introduction to Artificial Intelligence*

## Term 3 - 2022

Profile information current as at 12/10/2024 04:26 pm

All details in this unit profile for COIT20277 have been officially approved by CQUniversity and represent a learning partnership between the University and you (our student).The information will not be changed unless absolutely necessary and any change will be clearly indicated by an approved correction included in the profile.

## General Information

### Overview

Artificial intelligence is closely related to the field called soft computing which provides a foundation for the conception, design, and deployment of intelligent systems directed towards intelligence and autonomy. This unit introduces you to the fundamental concepts of artificial intelligence in the three prominent areas of fuzzy systems, artificial neural networks, and evolutionary computation. You will be introduced to topics of genetic algorithms, evolutionary programming, and genetic programming. You will also be introduced to the most commonly used neural network paradigms. You will learn the concepts of fuzzy sets and fuzzy logic, and approximate reasoning, as part of fuzzy systems. The theoretical concepts will be reinforced with hands-on experience during computer lab tutorials.

### Details

Career Level: *Postgraduate*
Unit Level: *Level 9*
Credit Points: *6*
Student Contribution Band: *8*
Fraction of Full-Time Student Load: *0.125*

### Pre-requisites or Co-requisites

Pre-requisite: COIT20245 Introduction to Programming
Important note: Students enrolled in a subsequent unit who failed their pre-requisite unit, should drop the subsequent unit before the census date or within 10 working days of Fail grade notification. Students who do not drop the unit in this timeframe cannot later drop the unit without academic and financial liability. See details in the Assessment Policy and Procedure (Higher Education Coursework).

### Offerings For Term 3 - 2022

No offerings for COIT20277

### Attendance Requirements

All on-campus students are expected to attend scheduled classes – in some units, these classes are identified as a mandatory (pass/fail) component and attendance is compulsory. International students, on a student visa, must maintain a full time study load and meet both attendance and academic progress requirements in each study period (satisfactory attendance for International students is defined as maintaining at least an 80% attendance record).

### Website

This unit has a website, within the Moodle system, which is available two weeks before the start of term. It is important that you visit your Moodle site throughout the term. Please visit Moodle for more information.

## Class and Assessment Overview

### Recommended Student Time Commitment

Each 6-credit Postgraduate unit at CQUniversity requires an overall time commitment of an average of 12.5 hours of study per week, making a total of 150 hours for the unit.

### Class Timetable

**Regional Campuses**
Bundaberg, Cairns, Emerald, Gladstone, Mackay, Rockhampton, Townsville

**Metropolitan Campuses**
Adelaide, Brisbane, Melbourne, Perth, Sydney

### Assessment Overview

1. **Written Assessment**
Weighting: 30%
2. **Written Assessment**
Weighting: 25%
3. **Written Assessment**
Weighting: 45%

### Assessment Grading

This is a graded unit: your overall grade will be calculated from the marks or grades for each assessment task, based on the relative weightings shown in the table above. You must obtain an overall mark for the unit of at least 50%, or an overall grade of 'pass' in order to pass the unit. If any 'pass/fail' tasks are shown in the table above they must also be completed successfully ('pass' grade). You must also meet any minimum mark requirements specified for a particular assessment task, as detailed in the 'assessment task' section (note that in some instances, the minimum mark for a task may be greater than 50%). Consult the University's Grades and Results Policy for more details of interim results and final grades.

## CQUniversity Policies

**All University policies are available on the CQUniversity Policy site.**
You may wish to view these policies:

- Grades and Results Policy
- Assessment Policy and Procedure (Higher Education Coursework)
- Review of Grade Procedure
- Student Academic Integrity Policy and Procedure
- Monitoring Academic Progress (MAP) Policy and Procedure – Domestic Students
- Monitoring Academic Progress (MAP) Policy and Procedure – International Students
- Student Refund and Credit Balance Policy and Procedure
- Student Feedback – Compliments and Complaints Policy and Procedure
- Information and Communications Technology Acceptable Use Policy and Procedure

This list is not an exhaustive list of all University policies. The full list of University policies are available on the CQUniversity Policy site.

## Previous Student Feedback

### Feedback, Recommendations and Responses

Every unit is reviewed for enhancement each year. At the most recent review, the following staff and student feedback items were identified and recommendations were made.

#### Feedback from Student feedback

**Feedback**
Link contents to real-world applications.

**Recommendation**
Initiate a content update to include materials that will cover real-world case studies and examples of artificial intelligence.

#### Feedback from Analysis by Unit Coordinator

**Feedback**
Need to focus more on applications of AI rather than theory. Based on the current industry trend consider using Python programming language instead of JAVA.

**Recommendation**
A unit update will be initiated to cover the basics of AI in the first 2/3 lectures then focus on the AI applications for data analysis, like healthcare, cybersecurity, etc, using Python based coding.

## Unit Learning Outcomes

**On successful completion of this unit, you will be able to:**

1. Model internal representation, performance criteria, and computational components identifying elements of authentic problems to apply neural, fuzzy or evolutionary computation
2. Create effective and efficient computational intelligence solutions to authentic problems
3. Evaluate the solution to a computational intelligence problem, analysing the merits and demerits of the chosen approach
4. Investigate the potential to enhance the model using one or more computational intelligence techniques.

The Australian Computer Society (ACS) recognises the Skills Framework for the Information Age (SFIA). SFIA provides a consistent definition of ICT skills. SFIA is adopted by organisations, governments, and individuals in many countries and is increasingly used when developing job descriptions and role profiles.
ACS members can use the tool MySFIA to build a skills profile at
https://www.acs.org.au/professionalrecognition/mysfia-b2c.html.
This unit contributes to the following workplace skills as defined by SFIA. The SFIA code is included:

- Data modelling and design (DTAN)
- Software design (SWDN)
- Programming/Software Development (PROG)
- Testing (TEST)
- Application Support (ASUP)

## Alignment of Learning Outcomes, Assessment and Graduate Attributes

— N/A Level • Introductory Level • Intermediate Level • Graduate Level ◦ Professional Level ◦ Advanced Level

### Alignment of Assessment Tasks to Learning Outcomes

| Assessment Tasks | Learning Outcomes | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| 1 - Written Assessment - 30% | • | • | | |
| 2 - Written Assessment - 25% | | • | • | • |
| 3 - Written Assessment - 45% | • | | • | • |

## Alignment of Graduate Attributes to Learning Outcomes

| Graduate Attributes | Learning Outcomes | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| 1 - Knowledge | ◦ | ◦ | ◦ | ◦ |
| 2 - Communication | ◦ | ◦ | ◦ | ◦ |
| 3 - Cognitive, technical and creative skills | ◦ | ◦ | ◦ | ◦ |
| 4 - Research | | | | ◦ |
| 5 - Self-management | ◦ | ◦ | ◦ | ◦ |
| 6 - Ethical and Professional Responsibility | | | | |
| 7 - Leadership | | | | |
| 8 - Aboriginal and Torres Strait Islander Cultures | | | | |

## Alignment of Assessment Tasks to Graduate Attributes

| Assessment Tasks | Graduate Attributes | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1 - Written Assessment - 30% | ◦ | ◦ | ◦ | | ◦ | | | |
| 2 - Written Assessment - 25% | ◦ | ◦ | ◦ | | ◦ | | | |
| 3 - Written Assessment - 45% | ◦ | ◦ | ◦ | ◦ | ◦ | | | |

## Textbooks and Resources

### Textbooks

**There are no required textbooks.**

### IT Resources

**You will need access to the following IT resources:**

## Referencing Style

Information for Referencing Style has not been released yet.
This unit profile has not yet been finalised.

## Teaching Contacts

Information for Teaching Contacts has not been released yet.
This unit profile has not yet been finalised.

## Assessment Tasks

Information for Assessment Tasks has not been released yet.
This unit profile has not yet been finalised.

## Academic Integrity Statement

Information for Academic Integrity Statement has not been released yet.
This unit profile has not yet been finalised.