

Unit Outline
COMP2009 Intelligent Agents
Semester 1, 2021

Unit study package code:	COMP2009										
Mode of study:	Internal										
Tuition pattern summary:	<p>Note: For any specific variations to this tuition pattern and for precise information refer to the Learning Activities section.</p> <p>Lecture: 1 x 2 Hours Weekly Computer Laboratory: 1 x 2 Hours Weekly</p> <p>This unit does not have a fieldwork component.</p>										
Credit Value:	25.0										
Pre-requisite units:	<p>COMP1002 (v.0) Data Structures and Algorithms or any previous version OR 1922 (v.0) Data Structures and Algorithms 120 or any previous version AND</p> <p>MATH1019 (v.0) Linear Algebra and Statistics for Engineers or any previous version OR MATH1015 (v.0) Linear Algebra 1 or any previous version</p>										
Co-requisite units:	Nil										
Anti-requisite units:	<p>4517 (v.0) Artificial and Machine Intelligence 300 or any previous version AND COMP3006 (v.0) Artificial and Machine Intelligence or any previous version</p>										
Result type:	Grade/Mark										
Approved incidental fees:	Information about approved incidental fees can be obtained from our website. Visit fees.curtin.edu.au/incidental_fees.cfm for details.										
Unit coordinator:	<table><tr><td>Title:</td><td>Dr</td></tr><tr><td>Name:</td><td>Hannes Herrmann</td></tr><tr><td>Phone:</td><td>08 9266 3309</td></tr><tr><td>Email:</td><td>Hannes.Herrmann@curtin.edu.au</td></tr><tr><td>Location:</td><td>Building: 314 - Room: 343</td></tr></table>	Title:	Dr	Name:	Hannes Herrmann	Phone:	08 9266 3309	Email:	Hannes.Herrmann@curtin.edu.au	Location:	Building: 314 - Room: 343
Title:	Dr										
Name:	Hannes Herrmann										
Phone:	08 9266 3309										
Email:	Hannes.Herrmann@curtin.edu.au										
Location:	Building: 314 - Room: 343										
Teaching Staff:											

Administrative contact:	Name:	Michelle Cutinha
--------------------------------	--------------	------------------

Phone: (08) 9266-7428
Email: M.Cutinha@curtin.edu.au
Location: Building: 314 - Room: 341

Learning Management System: [Blackboard](https://lms.curtin.edu.au) (lms.curtin.edu.au)

Acknowledgement of Country

We respectfully acknowledge the Indigenous Elders, custodians, their descendants and kin of this land past and present. The [Centre for Aboriginal Studies](#) aspires to contribute to positive social change for Indigenous Australians through higher education and research.

Syllabus

This unit introduces intelligent agents and the artificial intelligence problems and approaches relating to them. Learners will become familiar with the modelling of autonomous agents, methods for programming agent behaviour as well as the basics of planning. This involves introducing a range of algorithms and logical processes which underlie agent behaviour. This unit introduces the need for machine learning in certain types of agents and introduces the logic involved but does not discuss details of machine learning techniques.

Introduction

This unit introduces intelligent agents and the artificial intelligence problems and approaches relating to them. Learners will become familiar with the modelling of autonomous agents, methods for programming agent behaviour as well as the basics of planning. This involves introducing a range of algorithms and logical processes which underlie agent behaviour. This unit introduces the need for machine learning in certain types of agents and introduces the logic involved but does not discuss details of machine learning techniques.









Please note that due to Covid-19 impacts, the assessment schedule for this unit has been modified and the delivery of some classes may be affected. Should public health and/or University advice change through the study period it is possible that assessment and delivery details in this document may again need to be changed. You will be kept up to date with any changes as they happen through Blackboard announcements.

This unit, in line with current research and university values, strives to achieve a positive and inclusive educational environment. This supports improved academic performance, increased confidence and creates a greater sense of safety and belonging. Your teaching team is committed to providing a safe and inclusive learning experience and requires students to take reasonable and appropriate measures to actively eliminate discrimination on the basis of ability; cultural and social background; and diverse sex, sexuality, and gender.







Unit Learning Outcomes

All graduates of Curtin University achieve a set of six Graduate Capabilities during their course of study. These inform an employer that, through your studies, you have acquired discipline knowledge and a range of other skills and capabilities which employers would value in a professional setting. Each unit in your course addresses the Graduate Capabilities through a clearly identified set of learning outcomes. They form a vital part in the process referred to as assurance of learning. The learning outcomes notify you of what you are expected to know, understand or be able to do in order to be successful in this unit. Each assessment for this unit is carefully designed to test your knowledge of one or more of the unit learning outcomes. On successfully completing all of the assessments you will have achieved all of these learning outcomes.

Your course has been designed so that on graduating you will have achieved all of Curtin's Graduate Capabilities through the assurance of learning processes in each unit.

On successful completion of this unit students can:		Graduate Capabilities addressed
1	Analyse and model the main issues and current approaches to autonomous agents	
2	Apply symbolic representation and logical techniques for problems relating to intelligent agents	
3	Apply standard algorithms relating to graph and space search and evaluate their use for specific problem domains	
4	Evaluate current techniques relating to intelligent agents and communicate design choices regarding these techniques in a manner appropriate for a scientific report	  
5	Discuss ethical behaviour in relation to the creation of autonomous agents	 

Curtin's Graduate Capabilities

	Apply discipline knowledge, principles and concepts		Innovative, creative and entrepreneurial		Effective communicators with digital competency
	Globally engaged and responsive		Culturally competent to engage respectfully with local First Peoples and other diverse cultures		Industry connected and career capable

Find out more about Curtin's Graduate Capabilities at the Curtin Learning and Teaching website: clt.curtin.edu.au

Learning Activities

Lectures are an opportunity to discuss the learning concepts while practicals allow students the chance to apply the theoretical knowledge.

Learning Resources

Library Reading List

The Reading List for this unit can be accessed through Blackboard.

Recommended texts

You do not have to purchase the following textbooks but you may like to refer to them.

- Stuart Russell and Peter Norvig. Artificial Intelligence: A Modern Approach, 3rd edition

Note that copies of the 2nd and 3rd edition are available in the library. This book will be referred to as a reference and you are strongly encouraged to do the readings from it, but is not entirely essential. You can theoretically read around the topics yourself, although that is likely to take more time.

(ISBN/ISSN: 978-013604259)

Assessment

Assessment policy exemptions

- There are no exemptions to the assessment policy

Assessment schedule

	Task	Value %	Date Due	Unit Learning Outcome(s) Assessed	Late Assessments Accepted?*	Assessment Extensions Considered?*
1	Assignment	30%	Week: 11 (Teaching week 10) Day: Friday Time: 5pm	2,3,4	Yes	Yes
2	Test	20%	Week: 8 (Teaching Week 7) Day: During the lecture Time: During the lecture	1,2,3	Yes	Yes
3	Final Examination	50%	Week: Exam Period Day: TBA Time: TBA	1,2,3,4,5	No	Yes

*Please refer to the Late Assessment and the Assessment Extension sections below for specific details and conditions.

Detailed information on assessment tasks

1. You will be given an assignment to work on, which will largely mean extending what is covered in practicals. More details will be on Blackboard in the first couple of weeks of semester.
2. The aim is to hold an in-class pen-and paper test during the normal lecture session, which will require booking a venue. We have been assured that this is possible.

If this is not possible, either due to booking issues, lockdowns or for any other reason, the format of the test will need to change. It may change to an assignment test or a viva, depending on what the roadblocks are.
3. The final exam. This WILL be based on an "assignment" given late in the semester. The format of the final exam will be a viva (verbal test) that will be fairly short and will allow the examiner to dig down to test understanding (as opposed to memorization) of key concepts.

Pass requirements

To pass in this unit you need to score an overall mark of 50%, must make a serious attempt at the assignment (score at least 10%) and score a minimum of 40% in the final exam (which is a viva).

Assessment Moderation

Fair assessment through moderation

Moderation describes a quality assurance process to ensure that assessments are appropriate to the learning outcomes, and that students work is evaluated consistently by assessors. Minimum standards for the moderation of assessments are described in the Assessment and Student Progression Manual, available from policies.curtin.edu.au/findapolicy/

Pre-marking moderation

Assessments will be moderated as per policies available at policies.curtin.edu.au/findapolicy/.

Intra-marking / Post-marking moderation

Assessments will be moderated as per policies available at policies.curtin.edu.au/findapolicy/.

Late assessment

Where the submission of a late assessment is permitted, late penalties will be consistently applied in this unit.

Where a late assessment **is** permitted for an assessment item or the entirety of the unit (refer to the Assessment Schedule table in this Unit Outline) and the student does not have an approved assessment extension:

1. For assessment items submitted within the first 24 hours after the due date/time, students will be penalised by a deduction of 5% of the total marks allocated for the assessment task;
2. For each additional 24 hour period commenced an additional penalty of 10% of the total marks allocated for the assessment item will be deducted; and
3. Assessment items submitted more than 168 hours late (7 calendar days) will receive a mark of zero.

Where late assessment **is NOT** permitted for an assessment item or the entirety of the unit (refer to the Assessment Schedule table in this Unit Outline) and the student does not have an approved assessment extension:

1. All assessment items submitted after the due date/time will receive a mark of zero.

Assessment extension

Where an application for an assessment extension **is** permitted for an assessment item(s) within this unit (refer to the Assessment Schedule table in this Unit Outline):

1. A student who is unable to complete an assessment item by/on the due date/time as a result of exceptional circumstances beyond the student's control, may apply for an assessment extension on the Assessment Extension Application Form as prescribed by the Academic Registrar. The form is available on the Forms page at <https://students.curtin.edu.au/essentials/forms-documents/forms/> and also within the student's OASIS (My Studies tab – Quick Forms) account.
2. The student will be expected to submit their application for an Assessment Extension with supporting documentation:
 - a. Australian Campuses: via the online form
 - b. Offshore campuses: to the School representative nominated below
3. Timely submission of this information supports the assessment process. For applications that are declined, delayed submission may have significant ramifications on the possible marks awarded.
4. An application may be accepted up to five working days after the due date/time of the assessment item where the student is able to provide a verifiable explanation as to why they were not able to submit the application prior to the assessment due date/time

Where an application for an assessment extension **is NOT** permitted for an assessment item(s) within this unit (refer to the Assessment Schedule table in this Unit Outline):

1. All assessment items submitted after the due date/time will be subject to late penalties or receive a mark of zero depending on the unit permitting late assessment submissions.

Australian campuses – School contact for Assessment Extension enquiries (submission is via the online form):

Offshore campuses – School representative for submission:

Deferred assessments

If your results show that you have been granted a deferred assessment you should immediately check OASIS for details.

Deferred examinations/tests will be held from 12/07/2021 to 16/07/2021 . Notification to students will be made after the Board of Examiners' meeting via the Official Communications Channel (OCC) in OASIS.

Further assessment

Further assessments, if granted by the Board of Examiners, will be held between 12/07/2021 and 16/07/2021 . Notification to students will be made after the Board of Examiners meeting via the Official Communications Channel in OASIS.

It is the responsibility of the student to be available to complete the requirements of a further assessment. If your results show that you have been granted a further assessment you should immediately check OASIS for details.

Reasonable adjustments for students with disabilities/health circumstances likely to impact on studies

A [Curtin Access Plan](#) (CAP) is a document that outlines the type and level of support required by a student with a disability or health condition to have equitable access to their studies at Curtin. Carers for people with disability may also be eligible for support. This support can include alternative exam or test arrangements, study materials in accessible formats, access to Curtin's facilities and services or other support as discussed with an advisor from [AccessAbility Services](#).

Documentation is required from your treating Health Professional to confirm your health circumstances or carer responsibilities.

If you think you may be eligible for a CAP, please contact AccessAbility Services. If you already have a CAP please provide it to the Unit Coordinator in week 1 of each study period.

Referencing style

The referencing style for this unit is IEEE.

More information on this referencing style can be obtained at https://en.wikipedia.org/wiki/IEEE_style

Privacy

As part of a learning or assessment activity, or class participation, your image or voice may be recorded or transmitted by equipment and systems operated by Curtin University. Transmission may be to other venues on campus or to others both in Australia and overseas.

Your image or voice may also be recorded by students on personal equipment for individual or group study or assessment purposes. Such recordings may not be reproduced or uploaded to a publicly accessible web environment. If you wish to make such recordings for study purposes as a courtesy you should always seek the permission of those who are impacted by the recording.

Recording of classes or course materials may not be exchanged or distributed for commercial purposes, for compensation, or for any other purpose other than personal study for the enrolled students in the unit. Breach of this may subject a student to disciplinary action under Statute No 10 – Student Disciplinary Statute.

If you wish to discuss this please talk to your Unit Coordinator.

Copyright

The course material for this unit is provided to you for your own research and study only. It is subject to copyright. It is a copyright infringement to make this material available on third party websites.

Academic Integrity (including plagiarism and cheating)

Academic Integrity

Curtin's [Student Charter](#), [Academic Integrity Program \(AIP\)](#), and core [Values](#) guide expectations regarding student behaviour and responsibilities. Information on these topics can be found on the [Student Essentials Website](#) or the Academic Integrity tab in Blackboard.

Academic Integrity Warnings

An Academic Integrity Warning may be issued to a New-to-Curtin student if they have inadequately acknowledged sources or collaborated inappropriately. [The Management of Academic Integrity Warnings for New to Curtin Students Procedures](#) provide further information and explain who is considered to be New-to-Curtin.

Academic Misconduct

Students with an academic breach that do not meet the New-to-Curtin criteria will be managed through the misconduct process. [Academic Misconduct](#) means conduct by a student that is dishonest or unfair in connection with any academic work. This includes all types of plagiarism, cheating, collusion, falsification or fabrication of data or other content, and Academic Misconduct Other, such as falsifying medical certificates for extension. More details can be found on the [Student Essentials Website](#) or on the [Academic Integrity Website](#).

Staff members are required to report suspected misconduct and an inquiry may take place. If misconduct is determined it will result in penalties, which may include a warning, a reduced or nil grade, a requirement to repeat the assessment, an annulled grade (ANN) or termination from the course. Some penalties may impact on future enrolment.

Academic work under inquiry will not be graded until the process has concluded. If your work is the subject of an inquiry you will be notified by email and Official Communication with an opportunity to respond. Appropriate support will be provided. For more information refer to [Statute No.10 Student Discipline and Academic Misconduct Rules](#).

Information and Communications Technology (ICT) Expectations

Curtin students are expected to have reliable internet access in order to connect to OASIS email and learning systems such as Blackboard and Library Services.

You may also require a computer or mobile device for preparing and submitting your work.

For general ICT assistance, in the first instance please contact OASIS Student Support:
oasisapps.curtin.edu.au/help/general/support.cfm

For specific assistance with any of the items listed below, please contact The Learning Centre:
life.curtin.edu.au/learning-support/learning_centre.htm

- Using Blackboard, the I Drive and Back-Up files
- Introduction to PowerPoint, Word and Excel

Additional information

Enrolment

It is your responsibility to ensure that your enrolment is correct - you can check your enrolment through the eStudent option on OASIS, where you can also print an Enrolment Advice.

Student Rights and Responsibilities

It is the responsibility of every student to be aware of all relevant legislation, policies and procedures relating to their rights and responsibilities as a student. These include:

- the Student Charter
- Values and Signature Behaviours
- the University's policy and statements on plagiarism and academic integrity
- copyright principles and responsibilities
- the University's policies on appropriate use of software and computer facilities

Information on all of the above is available through the University's "Student Rights and Responsibilities" website at: students.curtin.edu.au/rights.

Student Equity

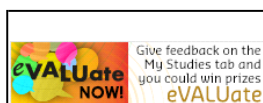
There are a number of factors that might disadvantage some students from participating in their studies or assessments to the best of their ability, under standard conditions. These factors may include a disability or medical condition (e.g. mental illness, chronic illness, physical or sensory disability, learning disability), significant caring responsibilities, pregnancy, religious practices, living in a remote location, or another reason. If you believe you may be unfairly disadvantaged on these or other grounds please contact the appropriate service below. It is important to note that the staff of the University may not be able to meet your needs if they are not informed of your individual circumstances, so please get in touch with the appropriate service if you require assistance.

To discuss your needs in relation to:

- Disability or medical conditions, contact AccessAbility Services: <https://students.curtin.edu.au/personal-support/disability/>
- Elite athletes, contact Elite Athlete Coordinator: <https://stadium.curtin.edu.au/sport/academy/elite-athlete-program/>
- All other grounds, contact the Student Wellbeing Advisory Service: <https://students.curtin.edu.au/personal-support/counselling-guidance/wellbeing/>

Recent unit changes

Students are encouraged to provide unit feedback through **eVALUate**, Curtin's online student feedback system. For more information about **eVALUate**, please refer to evaluate.curtin.edu.au/info/.



To view previous student feedback about this unit, search for the Unit Summary Report at https://evaluate.curtin.edu.au/student/unit_search.cfm. See <https://evaluate.curtin.edu.au/info/dates.cfm> to find out when you can **eVALUate** this unit.

Recent changes to this unit include:

n/a

Program calendar

Wk	Begin	Lecture/ Seminar	Pre-readings	Tutorial/Other	Assessment Due
0.	22 Feb	Orientation Week			
1.	1 Mar	Introduction - Intelligence and Reasoning	Ch 1		
2.	8 Mar	Intelligent Agents	Ch 2		
3.	15 Mar	Uninformed Search	Ch 3.1 - 3.4		
4.	22 Mar	Informed Search	Ch 3.4 – 3.6		
5.	29 Mar	Local Search and Optimization	Ch 4.1 (4.2, 4.3)		
6.	5 Apr	Tuition Free Week			
7.	12 Apr	Adversarial Search	Ch 5.1 - 5.4		
8.	19 Apr	Test	n/a		Test
9.	26 Apr	Constraint Satisfaction	Ch 6		
10.	3 May	Logical Agents, Propositional Logic	Ch 7		
11.	10 May	First Order Logic, Inference	Ch 8,9		Assignment
12.	17 May	Planning	Ch 10-11		
13.	24 May	Natural Language Processing	Ch 22-23		
14.	31 May	Study Week			
15.	7 Jun	Examinations			
16.	14 Jun	Examinations			