COMP30024 Artificial Intelligence

Credit Points:	12.5
Level:	3 (Undergraduate)
Dates & Locations:	2015, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus.
Time Commitment:	Contact Hours: 36 hours, comprising of two 1-hour lectures and one 1-hour workshop per week Total Time Commitment: 170 hours
Prerequisites:	**One of the following:**

Subject	Study Period Commencement:	Credit Points:
COMP20003 Algorithms and Data Structures	Semester 2	12.50
COMP20007 Design of Algorithms	Semester 1	12.50

	433-253 Algorithms and Data Structures 433-298 Algorithms and Data Structures
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	Students cannot enrol in and gain credit for this subject and: 433-303 Artificial Intelligence
Core Participation Requirements:	For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Student Support and Engagement Policy, academic requirements for this subject are articulated in the Subject Overview, Learning Outcomes, Assessment and Generic Skills sections of this entry. It is University policy to take all reasonable steps to minimise the impact of disability upon academic study, and reasonable adjustments will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact on meeting the requirements of this subject are encouraged to discuss this matter with a Faculty Student Adviser and Student Equity and Disability Support: http://services.unimelb.edu.au/disability
Coordinator:	Prof Christopher Leckie
Contact:	email: **caleckie@unimelb.edu.au (mailto:caleckie@unimelb.edu.au)**
Subject Overview:	**AIMS** Artificial intelligence is the quest to create intelligent agents that can complete complex tasks which are at present only achievable by humans. This broad field covers logic, probability, perception, reasoning, learning and action; and everything from Mars Rover robotic explorers to the Watson Jeopardy playing program. You will explore some of the vast area of artificial intelligence. Topics covered include: searching, problem solving, reasoning, knowledge representation and machine learning. Topics may also include some of the following: game playing, expert systems, pattern recognition, machine vision, natural language, robotics and agent-based systems. **INDICATIVE CONTENT** # Agents and search

	# Probabilistic reasoning # Machine Learning # Pattern recognition for robotics.
Learning Outcomes:	**INTENDED LEARNING OUTCOMES (ILO)** On completion of this subject the student is expected to: 1 Identify problems that can be solved by search, and create search-based solution algorithms 2 Design intelligent agents 3 Choose the best search-based solving methods for a particular problem 4 Make use of formal approaches for representing and reasoning about knowledge 5 Build systems that use simple learning approaches to improve their performance
Assessment:	A programming project submitted in two parts during semester, requiring approximately 30 - 35 hours of work (30%). A component of the marks for the project work will be based on the individual contribution to the project. 3-hour end-of-semester written examination (70%). Hurdle requirement: To pass the subject, students must obtain at least 50% overall 15/30 in project work And 35/70 in the written examination. Intended Learning Outcomes (ILOs) 1-4 are addressed in the lectures, workshops exercises and the examination. ILO 5 is addressed in the project work.
Prescribed Texts:	Artificial Intelligence: A Modern Approach, by S. Russell and P. Norvig, Pearson, ISBN 9781292024202.
Breadth Options:	This subject potentially can be taken as a breadth subject component for the following courses: # **Bachelor of Arts (https://handbook.unimelb.edu.au/view/2015/B-ARTS)** # **Bachelor of Commerce (https://handbook.unimelb.edu.au/view/2015/B-COM)** # **Bachelor of Music (https://handbook.unimelb.edu.au/view/2015/B-MUS)** You should visit **learn more about breadth subjects (http://breadth.unimelb.edu.au/ breadth/info/index.html)** and read the breadth requirements for your degree, and should discuss your choice with your student adviser, before deciding on your subjects.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	On completion of this subject students should have developed the following generic skills: # The ability to analyse and solve problems involving complex reasoning # The ability to synthesise information and communicate results effectively # The capacity for critical and independent thought and reflection # The ability to apply knowledge of basic science and engineering fundamentals # The ability to undertake problem identification, formulation and solution.
Notes:	**INDICATIVE KEY LEARNING RSEOURCES** Students have access to lecture notes, lecture slides, tutorial exercises, and a test environment for evaluating their project submissions. **CAREERS/INDUSTRY LINKS** The material in this subject is highly relevant to the growing industry of data analytics in fields such as medicine, computer gaming, finance and industrial automation. Examples of guest lecturers who have been involved in this subject include staff of Telstra, IBM and NICTA.
Related Majors/Minors/ Specialisations:	Computer Science Computer Science Computer Science Computer Science Master of Engineering (Software with Business) Master of Engineering (Software) Science-credited subjects - new generation B-SCI and B-ENG.