INFS 3003 ARTIFICIAL INTELLIGENCE

Credit Points 10

Legacy Code 301174

Coordinator Zhigang Lu (https://directory.westernsydney.edu.au/search/name/Zhigang Lu/)

Description This subject provides basic studies in the major areas of artificial intelligence: search, knowledge representation, logic programming, machine learning and knowledge based systems, agent planning and learning. The first part of this subject will focus on the foundation of artificial intelligence: search algorithms and their implementations, game playing, logics and knowledge representation, and inference in reasoning systems. The second part will cover the principles of knowledge based systems (intelligent systems), planning, and machine learning. The subject plays an important part in preparing students for career paths as AI engineers, Machine Learning engineers and intelligent software engineers.

School Computer, Data & Math Sciences

Discipline Information Systems

Student Contribution Band HECS Band 2 10cp

Check your fees via the Fees (https://www.westernsydney.edu.au/currentstudents/current_students/fees/) page.

Level Undergraduate Level 3 subject

Pre-requisite(s) MATH 1006 AND
COMP 2009

Equivalent Subjects LGYA 5740 Artificial Intelligence LGYA 5781 Knowledge Based Systems INFS 3013 Intelligent Systems

Assumed Knowledge

Basic understanding of data structures and algorithms and basic programming skills in Pascal C/C++ or Java etc.

Learning Outcomes

On successful completion of this subject, students should be able to:

1. Articulate the major concepts of artificial intelligence and knowledge based systems and their historical context.
2. Effectively develop essential and advanced search algorithms for classical and complex AI problem solving.
3. Explain and develop classic and non-classic game playing programs for specific game tasks.
4. Construct sound and effective first-order inference procedures and adapt them to solve complex reasoning problems in various domains.
5. Analyse and evaluate critical AI technologies including the intelligent agent planning systems and decision tree learning algorithm.
6. Integrate AI search algorithms and logic reasoning mechanisms to solve complex problems in the domain of intelligent agents.

Subject Content

Introduction to Artificial Intelligence and Knowledge Based Systems
Search I: Solving Problems by Search
Search II: Informed Search (A* Search)
Search III: Game Playing
Reasoning and Logic
First Order Logic
Development of Intelligent Systems
Planning and Acting
Learning Decision Trees
Decision Making

Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

Type	Length	Percent	Threshold	Individual/ Group Task	Mandatory
Practical	4 hours	10	N	Individual	N
Practical	8 hours	40	N	Individual	N
Final Exam	2 hours	50	Y	Individual	Y

Teaching Periods

Spring (2025)

Penrith (Kingswood)

Hybrid

Subject Contact Zhigang Lu (https://directory.westernsydney.edu.au/search/name/Zhigang Lu/)

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=INFS3003_25-SPR_KW_3#subjects)

Parramatta - Victoria Rd

Hybrid

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