

433-679 Evolutionary and Neural Computation

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Time Commitment:	Contact Hours: 3 hours per week; Non-contact time commitment: 84 hours Total Time Commitment: Not available
Prerequisites:	Suitable background knowledge of artificial intelligence
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	None
Core Participation Requirements:	<p><p>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.</p> <p>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</p></p>
Subject Overview:	Introduction to intelligent systems. Concepts of genetic operators such as crossover, mutation, fitness functions, scaling and sampling in GAs. Numerical optimisation using GAs. Applications to scheduling problems. Basic concepts of neural computing. Introduction to various types of neural networks: feed-forward neural nets, auto-associative nets, self-organising nets. Fuzzy and neurofuzzy systems, and applications to which they are suited. Design of neural computing applications and optimisation using an iterative approach. Hybrid intelligent systems.
Objectives:	-
Assessment:	Project work of approximately 36-hours (40%) and one written examination not exceeding 3-hours at the end of semester (60%).
Prescribed Texts:	None
Breadth Options:	This subject is not available as a breadth subject.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	<p>On successful completion, students should:</p> <ul style="list-style-type: none"> # be able to control the genetic operators and use genetic algorithms for optimization problems; # be able to describe differences between classical and fuzzy rules and be able to represent fuzzy sets in a computer; # be able to design and use neural nets in a number of application areas; # have acquired an understanding of hybrid systems and their topology; # be able to undertake problem identification, formulation and solution; # have a capacity for independent critical thought, rational inquiry and self-directed learning; and # have a profound respect for truth and intellectual integrity, and for the ethics of scholarship.
Related Course(s):	Master of Information Technology Master of Software Systems Engineering
Related Majors/Minors/Specialisations:	R05 PM Master of Science (Management Science)