

COMP90051 Statistical and Evolutionary Learning

Credit Points:	12.50									
Level:	9 (Graduate/Postgraduate)									
Dates & Locations:	This subject is not offered in 2013.									
Time Commitment:	Contact Hours: 36 hours, comprising of two 1-hour lectures and one 1-hour workshop per week Total Time Commitment: 120 hours									
Prerequisites:	<p>One of the following:</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>COMP30018 Knowledge Technologies</td> <td>Not offered 2013</td> <td>12.50</td> </tr> <tr> <td>COMP90049 Knowledge Technologies</td> <td>Not offered 2013</td> <td>12.50</td> </tr> </tbody> </table>	Subject	Study Period Commencement:	Credit Points:	COMP30018 Knowledge Technologies	Not offered 2013	12.50	COMP90049 Knowledge Technologies	Not offered 2013	12.50
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COMP30018 Knowledge Technologies	Not offered 2013	12.50								
COMP90049 Knowledge Technologies	Not offered 2013	12.50								
Corequisites:	None									
Recommended Background Knowledge:	None									
Non Allowed Subjects:	<p>433-484 Machine Learning 433-679 Evolutionary and Neural Computation 433-680 Machine Learning 433-684 Machine Learning</p>									
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>									
Contact:	email: lkulik@unimelb.edu.au (mailto:lkulik@unimelb.edu.au)									
Subject Overview:	<p>With exponential increases in the amount of data becoming available in fields such as finance and biology, and on the web, there is an ever-greater need for methods to detect interesting patterns in that data, and classify novel data points based on curated data sets. Statistical machine learning and evolutionary computation provide the means to perform this analysis automatically, and in doing so to enhance understanding of general processes or to predict future events.</p> <p>Topics covered will include: association rules, clustering, instance-based learning, statistical learning, evolutionary algorithms, swarm intelligence, neural networks, numeric prediction, weakly supervised classification, discretisation, feature selection and classifier combination.</p> <p>This subject is intended to introduce graduate students to machine learning through a mixture of theoretical methods and hands-on practical experience in applying those methods to real-world problems.</p>									
Objectives:	<p>On completion of this subject students should be able to:</p> <ul style="list-style-type: none"> # Describe a range of statistical and evolutionary learning algorithms # Design, implement and evaluate statistical and evolutionary learning systems to solve real-world problems, based on an appreciation of their relative suitability to different tasks 									

Assessment:	Two projects due around weeks 7 and 11, expected to take about 36 hours (50%) An end-of-semester examination not exceeding 3 hours (50%) To pass the subject, students must obtain: A mark of at least 25/50 on the exam and also a combined mark of at least 25/50 for the projects
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 completion of the subject students should have the:</p> <ul style="list-style-type: none"> # Ability to undertake problem identification, formulation, and solution # Ability to utilise a systems approach to complex problems and to design and operational performance ability to manage information and documentation # Capacity for creativity and innovation # Ability to communicate effectively both with the engineering team and the community at large
Related Course(s):	<p>Master of Engineering in Distributed Computing Master of Information Technology Master of Information Technology Master of Information Technology Master of Philosophy - Engineering Master of Science (Computer Science) Master of Software Systems Engineering Ph.D.- Engineering</p>
Related Majors/Minors/ Specialisations:	B-ENG Software Engineering stream