

COMP90058 Advanced Spatiotemporal Data Analytics

Credit Points:	12.5
Level:	9 (Graduate/Postgraduate)
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 Total Time Commitment: 200 hours
Prerequisites:	This subject is only available to Research Higher Degree students. Undergraduate level subjects in programming (such as C/C++ or Java), databases, and statistics are required. Students may enrol in this subject only with the approval of the subject coordinator; a brief discussion with the subject coordinator is required before enrolment.
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>
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Subject Overview:	<p>AIMS</p> <p>As the proliferation of mobile devices continues, spatiotemporal (ST) data is produced at unprecedented speed. We can mine interesting knowledge from this data for wide ranges of applications such as traffic management, route optimisation, location-based social networks, disaster monitoring and urban planning. Faced with a plethora of emerging and novel applications on ST data, what knowledge to mine from the data, how to mine the data and how to manage the huge amount of data are pressing issues. This subject provides an introduction to such topics and focuses on a few advanced topics such as indexing and query processing ST data, probabilistic models for ST data, spatial keyword search, and spatio-textual data join queries. This subject provides students with the basis and background to enter more advanced research in this exiting area.</p>
Learning Outcomes:	<p>INTENDED LEARNING OUTCOMES (ILOs)</p> <p>Having completed this subject the students are expected to:</p> <ol style="list-style-type: none"> 1 Gain basic knowledge on ST data such as concepts, models, applications and so on 2 Gain knowledge about the management, basic operations, various types of queries and how to process such queries on ST data 3 Know important research problems in ST data and commonly used methods to address these problems 4 Have experience in proposing new research problems or methods in ST data research 5 Learn skills of conducting high quality research in the area of ST data bases and mining.

Assessment:	A literature review on a chosen research topic in the area of ST data bases and mining. About 26 hours of work. Due week 7 or 8 (20%) An oral presentation of the literature review. About 13 hours of work, including preparation. Due week 6 or 7 (10%) A research proposal: a new research problem or/and methods to address the problem. About 13 hours of work. Due around week 12 (10%) One 2-hour end-of-semester examination (60%) Hurdle Requirement: To pass the subject, students must obtain at least: 50% of each of the four components
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:	On completing this subject, students should be able to: <ol style="list-style-type: none"> 1 Know how to manage large amount of ST data and perform queries on them 2 Understand and be able to apply advanced data mining techniques on ST data 3 Analyse ST data management and mining problems in real-life and propose methods to address them.
Related Course(s):	Master of Philosophy - Engineering Ph.D.- Engineering