

MAST30011 Graph Theory

Credit Points:	12.50
Level:	3 (Undergraduate)
Dates & Locations:	2010, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus. Lectures and practice classes.
Time Commitment:	Contact Hours: 3 x one hour lectures per week, 1 x one hour practice class per week Total Time Commitment: Estimated total time commitment of 120 hours
Prerequisites:	One of # 620-295 Real Analysis with Applications (/view/2010/620-295) # 620-158 Accelerated Mathematics 2 (/view/2010/620-158) and any other second year level subject from the Department of Mathematics and Statistics
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	None
Core Participation Requirements:	It is University policy to take all reasonable steps to minimise the impact of disability upon academic study and reasonable steps will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact upon their active and safe participation in a subject are encouraged to discuss this with the relevant subject coordinator and the Disability Liaison Unit.
Coordinator:	Assoc Prof Sanming Zhou
Contact:	Third Year Coordinator Email: tycoord@ms.unimelb.edu.au (mailto:tycoord@ms.unimelb.edu.au)
Subject Overview:	Graphs model networks of all types such as telecommunication, transport, computer and social networks. They also model physical structures such as crystals and abstract structures within computer algorithms. This subject is an introduction to the modern field of graph theory. It emphasises the relationship between proving theorems in mathematics and the construction of algorithms to find the solutions of mathematical problems within the context of graph theory. The subject provides material that supplements other areas of study such as operations research, computer science and discrete mathematics
Objectives:	On completion of this subject, students should: # Be familiar with the definitions and basic theory of graphs; # Be able to implement many of the standard algorithms of graph theory; # Be able to prove simple results in graph theory.
Assessment:	Two written assignments due mid-semester and at the end of semester amounting to a total of up to 50 pages (20%), and a 3-hour written examination in the examination period (80%).
Prescribed Texts:	None
Recommended Texts:	G. Chartrand and O.R. Oellerman, Applied and Algorithmic Graph Theory, McGraw-Hill, 1993, Freeman, 1998.

Breadth Options:	<p>This subject potentially can be taken as a breadth subject component for the following courses:</p> <ul style="list-style-type: none"> # Bachelor of Arts (https://handbook.unimelb.edu.au/view/2010/B-ARTS) # Bachelor of Commerce (https://handbook.unimelb.edu.au/view/2010/B-COM) # Bachelor of Environments (https://handbook.unimelb.edu.au/view/2010/B-ENVS) # Bachelor of Music (https://handbook.unimelb.edu.au/view/2010/B-MUS) <p>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.</p>
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	<p>In addition to learning specific skills that will assist students in their future careers in science, they will have the opportunity to develop generic skills that will assist them in any future career path. These include:</p> <ul style="list-style-type: none"> # problem-solving skills: the ability to engage with unfamiliar problems and identify relevant solution strategies; # analytical skills: the ability to construct and express logical arguments and to work in abstract or general terms to increase the clarity and efficiency of analysis; # collaborative skills: the ability to work in a team; # time-management skills: the ability to meet regular deadlines while balancing competing commitments.
Notes:	This subject is available for science credit to students enrolled in the BSc (both pre-2008 and new degrees), BAsc or a combined BSc course.
Related Course(s):	Bachelor of Science
Related Majors/Minors/Specialisations:	<p>Applied Mathematics Mathematics & Statistics Major Mathematics and Statistics (Applied Mathematics specialisation) Mathematics and Statistics (Discrete Mathematics specialisation) Mathematics and Statistics (Pure Mathematics specialisation) Operations Research / Discrete Mathematics Pure Mathematics</p>