620-352 Graph Theory

Credit Points:	12.50
Level:	3 (Undergraduate)
Dates & Locations:	2009, This subject commences in the following study period/s: Semester 1, - Taught on campus. Lectures and practice classes.
Time Commitment:	Contact Hours: 36 one-hour lectures (three per week) and up to 12 one-hour practice classes (one per week) Total Time Commitment: 120 hours total time commitment.
Prerequisites:	Any two second year level subjects from the Department of Mathematics and Statistics. The computer science subject *Algorithms and Data Structures* may be substituted for one of these subjects.
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:	Prof Aleks Owczarek
Subject Overview:	This subject introduces the basic concepts of graph theory including isomorphic graphs, subgraphs, connectedness, bipartite graphs, paths and cycles, trees, weighted graphs and distance in graphs, Steiner trees, matchings, flows and eulerian circuits. Students should develop the ability to implement algorithms on graphs for finding objects such as minimum spanning trees, maximum matchings and flows; and to implement approximation algorithms. Students should also develop the ability to prove simple results in graph theory. This subject demonstrates the variety of applications of graph theory within and outside mathematics. Introduction to graph theory topics include the concepts listed above, but may also include colouring properties, combinatorics, and the probabilistic method.
Objectives:	.
Assessment:	Up to 24 pages of written assignments due during semester (0% or 10%); a 3-hour written examination in the examination period (90% or 100%). The relative weighting of the examination and the total assignment mark will be chosen so as to maximise the student's final mark.
Prescribed Texts:	None
Breadth Options:	This subject potentially can be taken as a breadth subject component for the following courses: # **Bachelor of Arts (https://handbook.unimelb.edu.au/view/2009/D09)** # **Bachelor of Commerce (https://handbook.unimelb.edu.au/view/2009/F04)** # **Bachelor of Environments (https://handbook.unimelb.edu.au/view/2009/A04)** # **Bachelor of Music (https://handbook.unimelb.edu.au/view/2009/M05)** 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.

Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Notes:	This subject is available for science credit to students enrolled in the BSc (pre-2008 degree only), BASc or a combined BSc course.
Related Majors/Minors/ Specialisations:	Mathematics & Statistics Major Mathematics and Statistics (Applied Mathematics specialisation) Mathematics and Statistics (Discrete Mathematics specialisation) Mathematics and Statistics (Pure Mathematics specialisation)