

620-353 Discrete Mathematics

Credit Points:	12.50
Level:	3 (Undergraduate)
Dates & Locations:	2009, This subject commences in the following study period/s: Semester 2, - Taught on campus. Lectures and practice classes.
Time Commitment:	Contact Hours: 36 one-hour lectures (three per week) and up to 12 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 <i>Algorithms and Data Structures</i> 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 Peter John Forrester
Subject Overview:	<p>Discrete mathematics is concerned with the study of objects which are finite in number and typically computable. At a computational level one seeks efficient algorithms and formulas for the listing and counting of the objects. Theory provides a way to these algorithms and formulas, and further provides links between seemingly disparate areas of discrete mathematics.</p> <p>Five main topics are studied. These are Counting, permutations and combinations; Combinatorial logic; Recursions and generating functions; Groups and permutations; Hall's theorem and designs. Outside of mathematics, aspects of these topics come up in the study of computer science, communication engineering, architecture and physics.</p> <p>A common theme throughout the course will be the constructive aspect of the subject, whereby algorithms and formulas are formulated for the enumeration and listing of discrete objects. Through studying this course students will gain an appreciation of the practical use of theoretical analysis.</p>
Objectives:	.
Assessment:	Up to 48 pages of written assignments due during semester (20%); a 3-hour written examination in the examination period (80%).
Prescribed Texts:	None
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"> # <u>Bachelor of Arts</u> (https://handbook.unimelb.edu.au/view/2009/D09) # <u>Bachelor of Commerce</u> (https://handbook.unimelb.edu.au/view/2009/F04) # <u>Bachelor of Environments</u> (https://handbook.unimelb.edu.au/view/2009/A04) # <u>Bachelor of Music</u> (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 and Statistics (Applied Mathematics specialisation) Mathematics and Statistics (Discrete Mathematics specialisation) Mathematics and Statistics (Mathematical Physics specialisation) Mathematics and Statistics (Pure Mathematics specialisation)