

MAST30012 Discrete Mathematics

Credit Points:	12.5									
Level:	3 (Undergraduate)									
Dates & Locations:	2016, Parkville This subject commences in the following study period/s: Semester 2, Parkville - Taught on campus.									
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 170 hours									
Prerequisites:	One of <table border="1" data-bbox="387 600 1485 801"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>MAST20026 Real Analysis</td> <td>Semester 1, Semester 2</td> <td>12.50</td> </tr> <tr> <td>MAST10009 Accelerated Mathematics 2</td> <td>Semester 2</td> <td>12.50</td> </tr> </tbody> </table> <p>and any other second year level subject from the Department of Mathematics and Statistics</p>	Subject	Study Period Commencement:	Credit Points:	MAST20026 Real Analysis	Semester 1, Semester 2	12.50	MAST10009 Accelerated Mathematics 2	Semester 2	12.50
Subject	Study Period Commencement:	Credit Points:								
MAST20026 Real Analysis	Semester 1, Semester 2	12.50								
MAST10009 Accelerated Mathematics 2	Semester 2	12.50								
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>									
Coordinator:	Dr Iwan Jensen									
Contact:	Third Year Coordinator Email: tycoord@ms.unimelb.edu.au (mailto:tycoord@ms.unimelb.edu.au)									
Subject Overview:	<p>This subject is concerned with the study of objects, which are finite in number and typically computable. At a computational level one seeks efficient algorithms and methods for construction and counting of the objects.</p> <p>The main topics to be covered are: enumeration, permutations, designs, finite geometry, words, Ramsey theory and physical combinatorics. Designs are relevant to statistics, Ramsey theory to computer science, and physical combinatorics to mathematical physics. Words are useful for representing and constructing objects and relating combinatorial objects to algebraic structures.</p>									
Learning Outcomes:	<p>On completion of this subject, the student should:</p> <ul style="list-style-type: none"> # comprehend the features characterizing problems in discrete combinatorial mathematics; # develop skills required to analyze and solve problems in discrete combinatorial mathematics; 									

	# appreciate the overlap between discrete mathematics and other areas of applied and pure mathematics.
Assessment:	Three written assignments due at regular intervals during 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
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/2016/B-ARTS) # Bachelor of Commerce (https://handbook.unimelb.edu.au/view/2016/B-COM) # Bachelor of Environments (https://handbook.unimelb.edu.au/view/2016/B-ENVS) # Bachelor of Music (https://handbook.unimelb.edu.au/view/2016/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 Majors/Minors/Specialisations:	<p>Discrete Mathematics / Operations Research Discrete Mathematics / Operations Research Discrete Mathematics / Operations Research Discrete Mathematics / Operations Research Discrete Mathematics and Operations Research (specialisation of Mathematics and Statistics major) Pure Mathematics (specialisation of Mathematics and Statistics major) Science-credited subjects - new generation B-SCI and B-ENG. Selective subjects for B-BMED</p>