MAST10009 Accelerated Mathematics 2

Credit Points:	12.50
Level:	1 (Undergraduate)
Dates & Locations:	2010, Parkville This subject commences in the following study period/s: Semester 2, Parkville - Taught on campus. Lectures and practice classes.
Time Commitment:	Contact Hours: 4 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:	A study score of at least 38 in VCE Specialist Mathematics 3/4 or equivalent, or one of # **620-157 Accelerated Mathematics 1 (/view/2010/620-157)** # 620-190 UMEP Maths for High Achieving Students or permission from the Director of the Mathematics and Statistics Learning Centre
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	Students may only gain credit for one of # **620-155 Calculus 2 (/view/2010/620-155)** # 620-158 Accelerated Mathematics 2 # 620-113 Applied Mathematics Advanced Plus (prior to 2008) # 620-123 Applied Mathematics Advanced (prior to 2008) # 620-143 Applied Mathematics (prior to 2009) # 620-193 Applied Mathematics (prior to 2006) Students may only gain credit for one of # 620-158 Accelerated Mathematics 2 # **620-295 Real Analysis with Applications (/view/2010/620-295)**
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 participation are encouraged to discuss this with the subject coordinator and the Disability Liaison Unit.
Coordinator:	Prof Barry Hughes
Contact:	First Year Coordinator **Email: fycoord@ms.unimelb.edu.au (mailto:fycoord@ms.unimelb.edu.au)**
Subject Overview:	This subject develops fundamental concepts and principles in mathematical analysis. Students should gain skills in the practical techniques of differential calculus, integral calculus and infinite series, and study selected applications of these techniques in mathematical modelling. Topics covered include heuristic and rigorous discussion of limits of real-valued functions, continuity and differentiability; Mean Value Theorem and applications; Taylor polynomials; Riemann integration, techniques of integration and applications, improper integrals; sequences and infinite series; first order differential equations, second order linear differential equations with constant coefficients and selected applications.

Objectives:	Students completing this subject should: # understand the significance and applications of properties of functions such as limits, continuity and differentiability; # be able to evaluate proper and improper Riemann integrals; # develop the ability to determine the convergence and divergence of infinite series; # be able to solve analytically first and second order ordinary differential equations, and use these equations to model some simple physical systems; # understand simple rigorous proofs of fundamental results in real analysis.
Assessment:	Two or three written assignments due at regular intervals during semester amounting to a total of up to 25 pages (10%), a 45-minute written test held mid-semester (10%), and a 3-hour written examination in the examination period (80%).
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/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)** 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
Generic Skills:	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: # 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; and # 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. Previously known as 620-158 Mathematics 2 (prior to 2009) This subject is suitable for students with a high level of achievement in VCE Specialist Mathematics 3/4 or equivalent. This subject, together with **620-157 Accelerated Mathematics 1 (/view/2010/620-157)** is equivalent in content to the three subjects # **620-155 Calculus 2 (/view/2010/620-155)** # **620-156 Linear Algebra (/view/2010/620-156)** # **620-295 Real Analysis with Applications (/view/2010/620-295)** Students who have completed 620-157 Mathematics 1 (prior to 2009) and 620-158 Accelerated Mathematics 2 will need to complete additional reading on multivariable calculus to cover the content of # **620-155 Calculus 2 (/view/2010/620-155)** # **620-156 Linear Algebra (/view/2010/620-156)** # **620-295 Real Analysis with Applications (/view/2010/620-295)**

Related Course(s):	Bachelor of Science