

620-252 Analysis

Credit Points:	12.500
Level:	Undergraduate
Dates & Locations:	2008, This subject commences in the following study period/s: Semester 2, - Taught on campus.
Time Commitment:	Contact Hours: 36 lectures (three per week) and 11 tutorial/practice class hours (one per week) Total Time Commitment: 120 hours
Prerequisites:	One of [07]620-122, [08]620-142, [05]620-192, [05]620-194, [07]620-211; and one of [07]620-113, [07]620-123, [08]620-143, [05]620-193.
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	Students may only gain credit for one of 620-221 and 620-252.
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:	Dr O Foda
Subject Overview:	<p>This subject deals with convergence of sequences and series; elementary topology of the real line; the fundamentals of continuity, and differentiability of functions of several real variables; analytic functions of a complex variable; complex derivative; power and Laurent series in complex variables; basic topological concepts in the complex plane; and Cauchy's theorem and its applications. Students completing this subject develop the ability to determine the convergence or otherwise of sequences and series; differentiate functions of a complex variable; calculate contour integrals; work with analytic functions in the cut plane; and apply Cauchy's integral formula and the residue theorem. The subject demonstrates the differences between functions of a real and a complex variable; and the role of complex analytic methods in solving important problems in science and engineering.</p> <p>Sequences and series topics include standard sequences and series, Cauchy convergence, ratio and nth root tests, absolute and conditional convergence, re-arrangements and power series. Continuity topics include continuity and differentiability of functions of several real variables. Functions of a complex variable topics include elementary functions of a complex variable, branches, differentiation, analytic functions and Cauchy-Riemann equations. Integration topics include line and contour integrals, and Cauchy's integral theorem; Laurent series; singularities, poles and Liouville's theorem; and residue theorem, limiting contours, and evaluation of integrals using contour integration.</p>
Assessment:	Up to 36 pages of written assignments due during the semester (0% or 15%); a 3-hour written examination in the examination period (85% 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:	<p>This subject is a level 2 or level 3 subject and is not available to new generation degree students as a breadth option in 2008.</p> <p>This subject or an equivalent will be available as breadth in the future.</p> <p>Breadth subjects are currently being developed and these existing subject details can be used as guide to the type of options that might be available.</p> <p>2009 subjects to be offered as breadth will be finalised before re-enrolment for 2009 starts in early October.</p>

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 Course(s):	Bachelor of Arts