

620-222 Linear and Abstract Algebra

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, [05]620-194 or [07]620-211; a grade of H3 or better in the prerequisite is recommended. Students with a grade of H1 in [08]620-142 or [05]620-192 will be permitted to enrol on completion of additional reading.
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:	A/Prof C Hodgson
Subject Overview:	<p>This subject develops the theory of linear algebra, building on material in earlier subjects and providing both a basis for later mathematics studies and an introduction to topics which have important applications in science and technology. It also introduces the theory of groups, which is at the core of modern algebra, and which has applications in many parts of mathematics and in theoretical physics.</p> <p>Linear algebra topics include revision and extension of basic concepts; vector spaces including complex spaces, inner products, linear transformations, eigenvalues and eigenvectors, dual spaces and the connection with inner products; the spectral theorem for normal matrices; and Jordan normal form, without proof but with applications. Groups topics include abstract groups, examples including matrix groups and permutation groups; homomorphisms, normal subgroups, quotients and the first homomorphism theorem; group actions and permutation groups; and conjugacy classes and their interpretation in symmetry groups, permutation groups and matrix groups. Applications topics may include wallpaper groups, symmetry groups of regular polyhedra, and permutation groups.</p>
Assessment:	Up to 24 pages of written assignments during the semester and a 45-minute written test held mid-semester (equally weighted, with a total of 0% or 20%); a 3-hour written examination in the examination period (80% or 100%). The relative weighting of the examination and the total assignment plus test 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