UNIVERSITY OF CALGARY

FACULTY OF SCIENCE
Department of Mathematics and Statistics

Mathematics 311 Linear Methods II

Vector spaces and subspaces. Linear independence. Matrix representations of linear transformations. Gram-Schmidt orthogonalization. Students will complete a project using a computer algebra system.
Course Hours: H(3-1T)
Prerequisite(s): One of Mathematics 211 or 213 or 221.
Antirequisite(s): Credit for both Mathematics 311 and 313 will not be allowed.

Syllabus

Topics	**Number of Hours**
Vector spaces, subspaces, independence, basis and dimension, row and column space of a matrix, rank, applications.	10
Linear transformations, kernel and image, composition, linear functionals, the double dual, transpose of a linear transformation.	10
Orthogonality, Gram-Schmidt process, orthogonal diagonalization and least squares approximation, quadratic forms, SVD.	12
Change of basis.	4
TOTAL HOURS	36

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