UNIVERSITY OF CALGARY

FACULTY OF SCIENCE
Department of Mathematics and Statistics

MATHEMATICS 211
"LINEAR METHODS I"

Calendar Description: H(3-1T-1)
Systems of equations and matrices, vectors, matrix representations, and determinants. Complex numbers, polar form. Eigenvalues, eigenvectors. Applications.
Prerequisite: A grade of 70% of higher in Pure Mathematics 30.
Note: Credit for both Mathematics 211 and 221 will not be allowed.

Syllabus

Topics	**Number of hours**
Systems of linear equations, Gauss-Jordan elimination, homogeneous systems, rank	3
Vectors in R^2 and R^3 , dot and cross products, projections, lines, planes, area, volumes	9
Matrix transformations in R^2, linear transformations	4
Matrix algebra, transpose, inverses, applications to systems of equations	6
Determinants by row reduction and their properties, application to inversion, area	4
Eigenvalues, eigenvectors, diagonalization	4
Polar coordinates, Complex numbers	4
Selected applications (Markov Chains, economic models, least squares approximation, linear programming)	2
TOTAL HOURS	**36**

* * * * * * *

2008:07:01
EC:jml