



MATHEMATICS 221

"LINEAR ALGEBRA FOR SCIENTISTS AND ENGINEERS"

Calendar Description: H(3-1T-1)

Systems of equations and matrices, vectors, matrix representations, and determinants. Complex numbers, polar coordinates. Eigenvalues, eigenvectors. Applications in the physical sciences.

Prerequisite: A grade of 70% or higher in Mathematics 30 or Pure Mathematics 30; or B- or better in Math II (Continuing Ed.).

Note: Credit for both Mathematics 211 and 221 will not be allowed.

Syllabus

<u>Topics</u>	<u>Number of hours</u>
Systems of linear equations, homogeneous case, rank	3
Matrix algebra, transpose, inverses	6
Determinants by row reduction, application to inversion, rank	4
Eigenvalues, eigenvectors, diagonalization	4
Vectors in \mathbb{R}^2 and \mathbb{R}^3 , dot and cross product, lines, planes, area, volumes	9
Matrix transformations in \mathbb{R}^2 , linear transformations	4
Polar coordinates, complex numbers	5
Other topics, review	1
TOTAL HOURS	36
