



EFFECTIVE: SEPTEMBER 2004
CURRICULUM GUIDELINES

A. Division: Instructional Effective Date: September 2004

B. Department / Program Area: Mathematics / Faculty of Science & Technology
 Revision New Course

If Revision, Section(s) Revised: C, F, H, J, M

Date of Previous Revision: June 28, 2002

Date of Current Revision: September 2004

C: Math 2232 **D:** Linear Algebra **E:** 3

Subject & Course No.	Descriptive Title	Semester Credits
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F: Calendar Description:

Math 2232 is a one semester introductory course designed to provide a solid foundation in the mathematics of linear algebra. This course is often the first course in abstract mathematics and the student is taught how to prove theorems. Topics include th

M: Course Objectives / Learning Outcomes

Upon completion of Math 2232 the student should be able to:

- solve systems of n equations in m unknowns using Gauss-Jordan elimination and Gaussian elimination
- prove and apply the basic properties of matrix addition, scalar multiplication, matrix multiplication, the transpose of a matrix and the inverse of a matrix
- express a system of equations as a matrix equation and vice versa
- determine the inverse of a matrix by Gauss-Jordan elimination and use the inverse to find the unique solution of a system of equations
- understand the terms square matrix, symmetric matrix, zero matrix, diagonal matrix, triangular matrix and identity matrix
- evaluate the determinant of an $n \times n$ matrix
- prove and apply the basic properties of the determinant of a matrix
- understand the terms singular, non-singular and invertible as applied to a matrix
- determine the adjoint of a matrix and use the adjoint to calculate the inverse of a matrix
- solve systems of equations using Cramer's Rule
- prove, apply and explain the basic properties of vector addition and scalar multiplication on the vector space

- determine the characteristic polynomial, eigenvalues and corresponding eigenspaces of a given matrix