MATH 332 – Matrices

Course Description from Bulletin: Matrix algebra, rank, inverses; systems of linear equations, determinants; eigenvalues and eigenvectors. (3-0-3)

Enrollment: Required for AM majors

Textbook(s): Anton, *Elementary Linear Algebra*, 8^{th} ed., John Wiley and Sons

Other required material: None

Prerequisites: MATH 251

Objectives:

1. Students will learn how to solve systems of equations through various techniques, especially through row reduction of matrices.
2. Students will learn determinants and their numerous applications.
3. Students will learn general vector spaces and linear transformations. Included in our vector spaces are R^n, P^n and m by n matrices known as M^{mn}. Topics include linear independence, column and row space, nullspace, basis and dimension.
4. Students will learn about inner product spaces including the Gram-Schmidt process and orthonormal bases.
5. Students will explore eigenvectors and eigenvalues and learn how to diagonalize a matrix.

Lecture schedule: 3 50 minute (or 2 75 minute) lectures per week

Course Outline:	Hours
1. Systems of linear equations	5
2. Determinants	3
3. Vectors in R^2 and R^3	2
4. Euclidean Vector Spaces	3
5. General Vector Spaces	6
6. Inner Product Spaces	5
7. Eigenvalues and Eigenvectors	4
8. Linear Transformations	5

Assessment:	Homework	20-30%
	Quizzes/Tests	40-50%
	Final Exam	20-30%

Syllabus prepared by: Andre Adler and Sue Sitton
Date: 12/15/05