BERGEN COMMUNITY COLLEGE
DIVISION OF MATHEMATICS, SCIENCE AND TECHNOLOGY
DEPARTMENT OF MATHEMATICS

COURSE SYLLABUS

MAT-286 LINEAR ALGEBRA

COURSE DESCRIPTION: Linear Algebra is a study of finite dimensional vector spaces. Topics considered include vectors and vector spaces, matrices, determinants, systems of linear equations, inner product spaces, linear transformations, eigenvalues and eigenvectors, and applications.

CREDITS/HOURS: 4 credits, 4 hours

PREREQUISITE: MAT-280 Calculus I with a grade of C or better or by permission of the Department Chair.

GENERAL EDUCATION COURSE: No

STUDENT LEARNING OBJECTIVES: **Upon successful completion of this course the student will be able to:**

1. Solve real-world application using the fundamental concepts of linear algebra including matrix algebra, solutions of linear systems, determinants, vector spaces, orthogonality, eigenvalues and eigenvectors.
2. Employ proofs to validate properties and arguments involving various concepts in linear algebra.
3. Identify with some specificity a few applied areas (e.g. differential equations, linear programming, Markov Chains, coding theory) where linear algebra plays an important role.
4. Use some technology (e.g. a calculator or computer software) to solve linear algebra problems.

ASSESSMENT MEASURES: Each of the above listed student learning objectives will be assessed by,

1. Written assignments and/or quizzes.
2. Written examinations
3. Other, as announced by the instructor

COURSE GRADE: Students should refer to the instructor's grading policy which will be distributed during the first meeting of the class.

TEXTBOOK: Elementary Linear Algebra, Anton, Howard; John Wiley & Sons; 11th Edition

COURSE CONTENT:

TOPIC	CHAPTER	SECTIONS
Determinants	2	All
Matrices	11 7	3 – 1.7 7.1
Systems of Linear Equations	1	1.1 – 1.2, 1.9
Euclidean 2-Space and 3-Space Euclidean n-space	3	3.1 – 3.3
General Vector Spaces	4	4.1 – 4.7
General Inner Product Spaces	6	6.1 – 6.5
Eigenvalues and Eigenvectors	5	5.1 – 5.2
Matrix Transformations	1	1.8
General Linear Transformations	8	8.1 – 8.4

REFERENCES: Edwards and Penney, Elementary Linear Algebra, Prentice-Hall
Larson, Edwards, and Falvo, Elementary Linear Algebra, Houghton-Mifflin
Lipschutz, Linear Algebra, Shaum's Outline Series, McGraw-Hill
Strang, Linear Algebra and its Applications

ELECTRONIC DEVICES: **The Department of Mathematics prohibits the use of cell-phones, PDA's, headphones, IPODs and other such devices in mathematics classes unless otherwise specified in the grading policy provided by the instructor at the beginning of the semester.**

FACULTY ABSENCE PROCEDURE: CLASS CANCELLATIONS may be found by clicking on the bottom of the Bergen Community College website, www.Bergen.edu. A list is also posted in a glass case near A-129, the main corridor on the first floor and in Ender Hall.

WEBSITE: Go to www.Bergen.edu, click on Academics, then Academic Departments, and then mathematics for more information regarding the Mathematics Department