

MATH 316
Introductory Linear Algebra
Fall 2002

Time & Place: TR 3:00–4:15, DIEHN 107

Instructor: Dr. Glenn Williams
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Textbook: Linear Algebra with Applications, 2nd Edition, Otto Bretscher

Course Overview: Math 316 is a three-credit course designed to teach the fundamentals of linear algebra. Topics will include solving systems of linear equations, matrix operations, vector spaces and subspaces, dimension and bases, determinants, eigenvectors and eigenvalues and, time permitting, orthogonality.

Prerequisite: Math 212

Grading:

Homework Sets (5): 30%

(a total of 6 homework sets will be given, the best 5 grades will be counted)

Exams (3): 40%

Final: 30%

Class Schedule:

Aug. 27:	1.1 – Introduction to Linear Systems
Aug. 29:	1.2 – Matrices and Gauss-Jordan Elimination
Sep. 3:	1.3 – Solutions of Linear Systems
Sep. 5:	2.1 – Introduction to Linear Transformations (Homework Set #1 Due – covering Sections 1.1–1.3)
Sep. 10:	2.2 – Linear Transformations in Geometry
Sep. 12:	2.3 – Inverse of a Linear Transformation
Sep. 17:	2.4 – Matrix Products
Sep. 19:	3.1 – Image and Kernel of a Linear Transformation (Homework Set #2 Due – covering Sections 2.1–2.4)
Sep. 24:	3.2 – Subspaces of \mathbb{R}^n , Bases, and Linear Independence
Sep. 26:	Exam I – covering Sections 1.1–1.3 and 2.1–2.4
Oct. 1:	3.3 – Dimension of a Subspace of \mathbb{R}^n
Oct. 3:	3.4 – Coordinates
Oct. 8:	4.1 – Introduction to Linear Spaces (Homework Set #3 Due – covering Sections 3.1–3.4)
Oct. 10:	4.2 – Linear Transformations and Isomorphisms
Oct. 15:	No Class – Fall Break
Oct. 17:	4.3 – Coordinates in a Linear Space
Oct. 22:	6.1 – Introduction to Determinants (Homework Set #4 Due – covering Sections 4.1–4.3)
Oct. 24:	6.2 – Properties of the Determinant
Oct. 29:	Exam II – covering Sections 3.1–3.4 and 4.1–4.3
Oct. 31:	6.3 – Geometrical Interpretations of the Determinant; Cramer's Rule
Nov. 5:	7.1 – Dynamical Systems and Eigenvectors (Homework Set #5 Due – covering Sections 6.1–6.3)
Nov. 7:	7.2 – Finding the Eigenvalues of a Matrix
Nov. 12:	7.3 – Finding the Eigenvectors of a Matrix
Nov. 14:	7.4 – Diagonalization
Nov. 19:	7.5 – Complex Eigenvalues (Homework Set #6 Due – covering Sections 7.2–7.4)
Nov. 21:	5.1 – Orthonormal Bases and Orthogonal Projections
Nov. 26:	Exam III – covering Sections 6.1–6.3 and 7.1–7.4
Nov. 28:	No Class – Thanksgiving Holiday
Dec. 3:	5.2 – Gram-Schmidt Process and QR Factorization
Dec. 14:	Final Exam (Saturday, 3:45–6:45)