

MATH 228: Intro to Linear Algebra and Differential Equations Spring 2003

Jan 15–17	1.1 Intro to Systems of Linear Equations 1.2 Gaussian Elimination 1.3 Matrices and Matrix Operations
Jan 20–24	1.4 Inverses; Rules of Matrix Arithmetic 1.5 Elementary Matrices; Finding A^{-1} 1.6 Further Results on Systems, Invertibility 1.7 Diagonal, Triangular, and Symmetric Matrices
Jan 27–31	2.1 The Determinant Function 2.2 Evaluating Determinants by Row Reduction 2.3 Properties of the Determinant Function 2.4 Cofactor Expansion; Cramer's Rule
Feb 3–7	4.1 Euclidean n -Space 4.2 Linear Transformations from R^n to R^m 4.3 Properties of Linear Transformations
Feb 10–14	5.1 Real Vector Spaces 5.2 Subspaces 5.3 Linear Independence 5.4 Basis and Dimension
Feb 17–21	5.5 Row Space, Column Space, and Nullspace 5.6 Rank and Nullity 6.1 Inner Products
Feb 22–23	Exam I
Feb 24–28	6.2 Angle and Orthogonality 6.3 Orthonormal Bases; Gram-Schmidt Process; QR-Decomposition 6.4 Best Approximation; Least Squares
Mar 3–7	6.5 Orthogonal Matrices; Change of Basis 7.1 Eigenvalues and Eigenvectors 7.2 Diagonalization 7.3 Orthogonal Diagonalization
Mar 8–16	<i>Midsemester Break</i>
Mar 17–21	8.1 General Linear Transformations 8.2 Kernel and Range 8.3 Inverse Linear Transformations 8.4 Matrices of General Linear Transformations 8.5 Similarity
Mar 24–28	1.1–1.3 Intro to Differential Equations 2.1 Linear Equations 2.2 Separable Equations + 2.3
Mar 31–Apr 4	2.3 Modeling with First Order Equations (2.4 Differences Between Linear and Nonlinear Equations) 2.5 Autonomous Equations and Population Dynamics 2.6 Exact Equations and Integrating Factors
Apr 7–11	3.1 Homogeneous Equations with Constant Coefficients 3.2 Fundamental Solutions of Linear Homogeneous Equations 3.3 Linear Independence and the Wronskian + 3.4
Apr 12–13	Exam II
Apr 14–16	3.4 Complex Roots of the Characteristic Equation 3.5 Repeated Roots; Reduction of Order + 3.6
Apr 18–21	<i>Easter Holiday</i>
Apr 23–25	3.6 Non-homogeneous Equations; Undetermined Coefficients 3.7 Variation of Parameters
Apr 28–30	3.8 Mechanical Vibrations 3.9 Forced Vibrations
May 7	Final Exam