

MATH 228: Intro to Linear Algebra and Differential Equations Spring 2004

Jan 14–16	1.1 Intro to Systems of Linear Equations 1.2 Gaussian Elimination 1.3 Matrices and Matrix Operations
Jan 19–23	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 26–30	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 2–6	4.1 Euclidean n -Space 4.2 Linear Transformations from R^n to R^m 4.3 Properties of Linear Transformations
Feb 9–13	5.1 Real Vector Spaces 5.2 Subspaces 5.3 Linear Independence
Feb 16–20	5.4 Basis and Dimension 5.5 Row Space, Column Space, and Nullspace 5.6 Rank and Nullity
Feb 19	Exam I
Feb 23–27	6.1 Inner Products 6.2 Angle and Orthogonality 6.3 Orthonormal Bases; Gram-Schmidt Process; QR-Decomposition
Mar 1–5	6.4 Best Approximation; Least Squares 6.5 Orthogonal Matrices; Change of Basis 7.1 Eigenvalues and Eigenvectors 7.2 Diagonalization
Mar 6–12	<i>Midsemester Break</i>
Mar 15–19	7.3 Orthogonal Diagonalization 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 22–26	1.1–1.3 Intro to Differential Equations 2.1 Linear Equations 2.2 Separable Equations + 2.3
Mar 29–Apr 2	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 5–8	3.1 Homogeneous Equations with Constant Coefficients 3.2 Fundamental Solutions of Linear Homogeneous Equations
Apr 8	Exam II
Apr 9–12	<i>Easter Holiday</i>
Apr 13–16	3.3 Linear Independence and the Wronskian + 3.4 3.4 Complex Roots of the Characteristic Equation
Apr 19–23	3.5 Repeated Roots; Reduction of Order + 3.6 3.6 Non-homogeneous Equations; Undetermined Coefficients 3.7 Variation of Parameters
Apr 26–28	3.8 Mechanical Vibrations 3.9 Forced Vibrations
May 6	Final Exam