MATH 20580: Intro to Lin. Alg. and Diff. Eqns, Fall 2013

Rough Schedule.

Jan 14	1.1–2 Systems, Row Reduction, Echelon Forms
16	1.3 Vector Eqns
19	1.4. The Matrix Eqn $A\mathbf{x} = \mathbf{b}$
21	1.5 Solution Sets of Linear Eqns
23	1.7 Linear Independence
26	1.8–9 Linear Transformations, Matrices
28	2.1–2 Matrix Operations and Inverses
30	2.3 Characterizations of Invertible Matrices
Feb 2	2.8 Subspaces of $\mathbf{R}^n$
4	2.9 Dimension and Rank
6	3.1–2 Determinants
9	3.3 Cramer's Rule, Volume, Lin. Trans.
11	Exam Review.
13	4.1–2 Vector Space, Subspaces, Lin. Trans.
16	4.3 Linearly Independent Sets; Bases
18	4.4 Coordinate Systems
20	4.5 Dimension of a Vector Space
23	4.6–7 Row spaces, Change of Basis
25	5.1–2 Eigenvectors/values, Char. Eqn
27	5.3 Diagonalization
Mar 2	5.4 Eigenvectors and Linear Transformations
4	Exam Review.
6	5.5 Complex Eigenvalues
9	*Spring Break*
16	6.1–2 Inner Product, Length, and Orthogonality
18	6.3 Orthogonal Projections
20	6.4 The Gram-Schmidt Process
23	6.5 Least Squares Problems
25	1.1–2 Solutions to differential equations, direction fields
27	1.3 Classification of Diff. Eqns
30	2.1–2 Linear Eqns, separable eqns
April 1	2.3 Modeling with First Order Eqns
3	*Easter Break.*
8	2.4 Diff. Between Lin. and Nonlin. Eqns
10	2.5 Autonomous Eqns and Pop. Dynamics
13	2.6 Exact Eqns and Integrating Factors
15	Exam Review.
17	3.1 Constant Coefficient Homogeneous Eqns
20	3.2 Linear homogeneous equations; Wronskian
22	3.3 Complex Roots
24	3.4 Repeated Roots, Reduction of Order
27	3.5 Undetermined Coefficients
29	3.6 Variation of Parameters