

Daily Schedule for MATH 8530

August

Monday	Tuesday	Wednesday	Thursday	Friday
21	22	23 Welcome and class overview	24	(36:24) 25 Lecture 1.1 Vector spaces HW 0 due
(39:25) 28 Lecture 1.2 Spanning and linear independence	29	(63:20) 30 Lectures 1.3—1.4 Direct sums products, and quotients	31	(52:43) 1 Lecture 1.5—1.6 Duality HW 1 due

September

Monday	Tuesday	Wednesday	Thursday	Friday
4 <i>No class: Labor Day</i>	5	(70:11) 6 Lectures 2.1—2.2 Rank and nullity	7	(35:23) 8 Lecture 2.3 Algebra of linear maps HW 2 due
(43:09) 11 Lecture 2.4 The four fundamental subspaces	12	(41:07) 13 Lecture 2.5 The transpose of a linear map	14	15 Lectures 2.6—2.7 The matrix of a linear map; change of basis HW 3 due
(58:03) 18 Lecture 3.1—3.2 Multilinear forms	19	(41:56) 20 Lecture 3.3 Alternating multilinear forms	21	(33:30) 22 Lecture 3.4 Determinant of a linear map HW 4 due
(65:12) 25 Lectures 3.5—6 Determinant and trace of a matrix	26	(56:25) 27 Lecture 3.7 Tensor products	28	(56:25) 29 Lecture 4.1 Eigenvalues and eigenvectors HW 5 due

October

Monday	Tuesday	Wednesday	Thursday	Friday
(49:20) 2 Lecture 4.2 The Cayley-Hamilton theorem	3	(29:29) 4 Lecture 4.3 Generalized eigenvectors	5	(41:31) 6 Lecture 4.4 Invariant subspaces HW 6 due
9 MIDTERM 1	10	(59:40) 11 Lectures 4.5—4.6 The spectral theorem and generalized eigenspaces	12	(52:43) 13 Lecture 4.7—4.8 Jordan canonical form; differential operators HW 7 due

October

Monday	Tuesday	Wednesday	Thursday	Friday
(49:20) 16 FALL BREAK	17 FALL BREAK	(??:??) 18 Lecture 4.9 Rational canonical form	19	(41:52) 20 Lecture 5.1 Inner products and Euclidean structure HW 8 due
(48:14) 23 Lecture 5.2 Orthogonality	24	(52:29) 25 Lecture 5.3 Gram-Schmidt and orthogonal projection	26	(56:49) 27 Lecture 5.4—5.5 Adjoins and least squares HW 9 due

November

Monday	Tuesday	Wednesday	Thursday	Friday
(32:19) 30 Lecture 5.6 Isometries	31	(47:06) 1 Lecture 5.7 Norms of linear maps	2	(??:??) 3 Lectures 5.8 Sequences and convergence HW 10 due
6 MIDTERM 2	7	(29:54) 8 Lectures 5.9 Complex inner product spaces	9	(36:11) 10 Lecture 6.1 Quadratic forms HW 11 due
(38:56) 13 Lecture 6.2 Spectral resolutions	14	15 Lecture 6.3 Normal linear maps	16	(53:09) 17 Lecture 6.4 The Rayleigh quotient HW 12 due
(44:50) 20 Lecture 6.5 Self-adjoint differential operators; Sturm-Liouville theory	21	22 THANKSGIVING BREAK	23	24 THANKSGIVING BREAK
(32:42) 27 Lecture 7.1 Positive definite and semi-definite maps	28	(44:50) 29 Lecture 7.2 Nonstandard inner products & Gram matrices	30	(??:??) 1 Lecture 7.3 Polar decomposition HW 13 due

December

Monday	Tuesday	Wednesday	Thursday	Friday
(??:??) 30 Lecture 7.4 Singular value decomposition	31	(??:??) 1 Lecture 7.5 Partially ordering positive maps	2	(??:??) 3 Lecture 7.6 Monotone matrix functions HW 14 due