Daily Schedule for MATH 8530

January

Monday	Tuesday	Wednesday	Thursday	Friday
5	6	(36:24) 7 **Welcome & class overview** **Lecture 1.1** Vector spaces	8	9 HW 0 due
(59:48) 12 **Lectures 1.2—1.3** Spanning, linear independence basis, products, sums	13	(67:33) 14 **Lectures 1.4—1.5** Quotients and dual spaces	15	16 HW 1 due
(60:38) 19 **Lectures 1.6—2.1** Annihilators, rank, nullity	20	(74:03) 21 **Lectures 2.2—2.3** Rank-nullity theorem, algebra of linear maps	22	23 HW 2 due
(84:16) 26 **Lectures 2.4—2.5** Four fundamental subspaces, transposes	27	(62:59) 28 **Lectures 2.6—2.7** The matrix of a linear map; change of basis	29	30 HW 3 due

February

Monday	Tuesday	Wednesday	Thursday	Friday
(58:03) 2 **Lectures 3.1—3.2** Multilinear forms	3	(75:26) 4 **Lectures 3.3—3.4** Alternating multilinear forms, determinant of a linear map	5	6 HW 4 due
(65:12) 9 **Lectures 3.5—3.6** Determinant and trace of a matrix	10	(56:25) 11 **Lecture 3.7** Tensors	12	13 HW 5 due
(39:44) 16 **Lecture 4.1** Eigenvalues and eigenvectors	17	(78:49) 18 **Lectures 4.2—4.3** The Cayley-Hamilton theorem, generalized eigenvectors	19	20 HW 6 due
23 **MIDTERM 1**	24	(59:40) 25 **Lectures 4.5—4.6** The spectral theorem and generalized eigenspaces	26	27 HW 7 due

March

Monday	Tuesday	Wednesday	Thursday	Friday
(??:??) **2** **Lecture 4.7—4.8** Jordan canonical form; differential operators	**3**	(??:??) **4** **Lectures 4.9, 5.1** Rational canonical form; inner products & Euclidean structure	**5**	**6** HW 8 due
(48:14) **9** **Lecture 5.2—5.3** Orthogonality, Gram-Schmidt	**10**	(72:47) **11** **Lecture 5.3—5.4** Gram-Schmidt, orthogonal projection, adjoints	**12**	**13** HW 9 due
16 ***SPRING BREAK***	**17**	**18** ***SPRING BREAK***	**19**	**20** ***SPRING BREAK***
(66:50) **23** **Lecture 5.5—5.6** Projection & least squares; isometries	**24**	(??:??) **25** **Lectures 5.7—5.8** Norms of linear maps, sequences, convergence	**26**	**27** HW 10 due

April

Monday	Tuesday	Wednesday	Thursday	Friday
30 **MIDTERM 2**	**31**	(66:05) **1** **Lectures 5.9, 6.1** Complex inner product spaces; quadratic forms	**2**	**3** HW 11 due
(74:03) **6** **Lecture 6.2—6.3** Spectral resolutions; normal linear maps	**7**	(53:09) **8** **Lecture 6.4** The Rayleigh quotient	**9**	**10** HW 12 due
(44.50) **13** **Lecture 6.5** Self-adjoint differential operators; Sturm-Liouville theory	**14**	(79:32) **15** **Lecture 7.1—7.2** Positive definite & semi-definite maps; Gram matrices	**16**	**17** HW 13 due
(??:??) **20** **Lecture 7.3—7.4** Polar & singular value decomposition	**21**	**22** **Lecture 7.5—7,6** Partially ordering positive maps; monotone matrix functions	**23**	**24** HW 14 due

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