Daily Schedule for MATH 8530

January

Monday	Tuesday	Wednesday	Thursday	Friday
		6 **Welcome and class overview**	7	(36:24) 8 **Lecture 1.1** Vector spaces
(39:25) 11 **Lecture 1.2** Spanning and linear independence	12	(63:20) 13 **Lectures 1.3—1.4** Direct sums products, and quotients	14	(52:43) 15 **Lecture 1.5—1.6** Duality HW 1 due
18 ***No class: MLK Day***	19	(31:31) 20 **Lecture 2.1** Rank and nullity	21	(38:40) 22 **Lecture 2.2** Applications of the rank-nullity theorem HW 2 due
(35:23) 25 **Lecture 2.3** Algebra of linear maps	26	(43:09) 27 **Lecture 2.4** The four fundamental subspaces	(64:24) 28	(41:07) 29 **Lecture 2.5** The transpose of a linear map HW 3 due

February

Monday	Tuesday	Wednesday	Thursday	Friday
(62:59) 1 **Lectures 2.6—2.7** The matrix of a linear map; change of basis	2	(58:03) 3 **Lecture 3.1—3.2** Multilinear forms	4	(41:56) 5 **Lecture 3.3** Alternating multilinear forms HW 4 due
(33:30) 8 **Lecture 3.4** Determinant of a linear map	9	(65:12) 10 **Lectures 3.5—6** Determinant and trace of a matrix	11	(56:25) 12 **Lecture 3.7** Tensor products HW 5 due
(56:25) 15 **Lecture 4.1** Eigenvalues and eigenvectors	16	(49:20) 17 **Lecture 4.2** The Cayley-Hamilton theorem	18	(29:29) 19 **Lecture 4.3** Generalized eigenvectors HW 6 due
(63:54) 22 **MIDTERM 1**	23	(41:31) 24 **Lecture 4.4** The spectral theorem and generalized eigenspaces	(64:24) 25	(59:40) 26 **Lectures 4.5—4.6** The spectral theorem and generalized eigenspaces HW 7 due

March

Monday	Tuesday	Wednesday	Thursday	Friday
(??:??) **1** **Lecture 4.7—4.8** Jordan canonical form; differential operators	**2**	(??:??) **3** **Lecture 4.9** Rational canonical form	(56:64) **4**	(41:52) **5** **Lecture 5.1** Inner products and Euclidean structure HW 8 due
(48:14) **8** **Lecture 5.2** Orthogonality	**9**	(52:29) **10** **Lecture 5.3** Gram-Schmidt and orthogonal projection	**11**	(56:49) **12** **Lecture 5.4—5.5** Adjoints and least squares HW 9 due
15 ***SPRING BREAK***	**16**	**17** ***SPRING BREAK***	**18**	**19** ***SPRING BREAK***
(32:19) **22** **Lecture 5.6** Isometries	**23**	(47:06) **24** **Lecture 5.7** Norms of linear maps	**25**	(??:??) **26** **Lectures 5.8—5.9** Sequences, convergence, complex inner products HW 10 due
29 **MIDTERM 2**	**30**	(36:11) **31** **Lecture 6.1** Quadratic forms	**1**	(38.56) **2** **Lecture 6.2** Spectral resolutions HW 11 due

April

Monday	Tuesday	Wednesday	Thursday	Friday
(35:07) **5** **Lecture 6.3** Normal linear maps	**6**	(53:09) **7** **Lecture 6.4** The Rayleigh quotient	**8**	(??:??) **9** **Lecture 6.5** Self-adjoint differential operators; Sturm-Liouville theory HW 12 due
(??:??) **12** **Lecture 7.1—7.2** Positive definite maps; generalized Rayleigh quotients	**13**	(??:??) **14** **Lecture 7.3** Gram matrices	**15**	(??:??) **16** **Lecture 7.4** Polar decomposition HW 13 due
(??:??) **19** **Lecture 7.5** Singular value decomposition	**20**	(??:??) **21** **Lecture 7.6** Partially ordering positive maps	**22**	(??:??) **23** **Lecture 7.7** Monotone matrix functions HW 14 due

Comments to: **macaule@clemson.edu**
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