Syllabus for 18.06 Linear Algebra, Fall 2005

MWF 3–4 Room 54-100

The three midterm exams will be held in Walker during lecture hours: closed book. All grading is by your recitation instructor!

W	9/7	The Geometry of Linear Equations	1.1–2.1
F	9/9	Elimination with Matrices	2.2–2.3
M	9/12	Matrix Operations and Inverses	2.4–2.5
W	9/14	LU and LDU Factorization	2.6
F	9/16	Transposes and Permutations	2.7
M	9/19	HOLIDAY	
W	9/21	Vector Spaces and Subspaces	3.1
F	9/23	The Nullspace: Solving $Ax = 0$	3.2
M	9/26	Rectangular $PA = LU$ and $Ax = b$	3.3–3.4
W	9/28	Row Reduced Echelon Form	3.3–3.4
F	9/30	Basis and Dimension	3.5
M	10/3	The Four Fundamental Subspaces	3.6
W	**10/5**	**Exam 1: Chapters 1 to 3.5**	
F	10/7	Graphs and Networks	8.2
M	10/10	HOLIDAY	
W	10/12	Orthogonality	4.1
F	10/14	Projections and Subspaces	4.2
M	10/17	Least Squares Approximations	4.3
W	10/19	Gram-Schmidt and $A = QR$	4.4
F	10/21	Properties of Determinants	5.1
M	10/24	Formulas for Determinants	5.2
W	10/26	Applications of Determinants	5.3
F	10/28	Eigenvalues and Eigenvectors	6.1
M	10/31	Exam review	
W	**11/2**	**Exam 2: Chapters 1–5, 8.2**	
F	11/4	Diagonalization	6.2
M	11/7	Markov Matrices	8.3
W	11/9	Fourier Series, FFT, Complex Matrices	8.5, 10.2–10.3
F	11/11	HOLIDAY	
M	11/14	Differential Equations	6.3
W	11/16	Symmetric Matrices	6.4
F	11/18	Positive Definite Matrices	6.5
M	11/21	Matrices in Engineering	8.1
W	11/23	Similar Matrices	6.6
F	11/25	THANKSGIVING	
M	11/28	Singular Value Decomposition	6.7
W	11/30	Linear Transformations	7.1–7.2
F	12/2	Exam Review	
M	**12/5**	**Exam 3: Chapters 1–8 (8.1, 2, 3, 5)**	
W	12/7	Choice of Basis	7.3–7.4
F	12/9	Linear Programming	8.4
M	12/12	*Course Review*	
W	12/14	Numerical Linear Algebra	9.1–9.3
M-F	**12/19-23**	**Final Exams**	