

# Syllabus for 18.06 Linear Algebra, Spring 2011

MWF 11-12 Room 54-100

**Text:** *Introduction to Linear Algebra, 4th Edition, Gilbert Strang*

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

W	2/2	The Geometry of Linear Equations	1.1–2.1
F	2/4	Elimination with Matrices	2.2–2.3
M	2/7	Matrix Operations and Inverses	2.4–2.5
W	2/9	$LU$ and $LDU$ Factorization	2.6
F	2/11	Transposes and Permutations	2.7
M	2/14	Vector Spaces and Subspaces	3.1
W	2/16	The Nullspace: Solving $Ax = 0$	3.2
F	2/18	Rectangular $PA = LU$ and $Ax = b$	3.3–3.4
M	2/21	(President's Day, Class on Tuesday)	
T	2/22	Row Reduced Echelon Form	3.3–3.4
W	2/23	Basis and Dimension	3.5
F	2/25	The Four Fundamental Subspaces	3.6
<b>M</b>	<b>2/28</b>	<b>Exam 1: Chapters 1 to 3.4</b>	
W	3/2	Graphs and Networks	8.2
F	3/4	Orthogonality	4.1
M	3/7	Projections and Subspaces	4.2
W	3/9	Least Squares Approximations	4.3
F	3/11	Gram-Schmidt and $A = QR$	4.4
M	3/14	Properties of Determinants	5.1
W	3/16	Formulas for Determinants	5.2
F	3/18	Applications of Determinants	5.3
M-F	3/21-25	HOLIDAY	
M	3/28	Eigenvalues and Eigenvectors	6.1
W	3/30	Diagonalization	6.2
F	4/1	Markov Matrices	8.3
M	4/4	<i>Review for Exam 2</i>	
<b>W</b>	<b>4/6</b>	<b>Exam 2: Chapters 1–5, 6.1–6.2, 8.2</b>	
F	4/8	Differential Equations	6.3
M	4/11	Symmetric Matrices	6.4
W	4/13	Positive Definite Matrices	6.5
F	4/15	Matrices in Engineering	8.1
M	4/18	HOLIDAY	
W	4/20	Similar Matrices	6.6
F	4/22	Singular Value Decomposition	6.7
M	4/25	Fourier Series, FFT, Complex Matrices	8.5, 10.2–10.3
W	4/27	Linear Transformations	7.1–7.2
F	4/29	Choice of Basis	7.3
M	5/2	Linear Programming	8.4
W	5/4	<i>Course Review</i>	
<b>F</b>	<b>5/6</b>	<b>Exam 3: Chapters 1–8 (8.1, 2, 3, 5)</b>	
M	5/9	Numerical Linear Algebra	9.1–9.3
W	5/11	Computational Science	18.085
		<b>Final Exam</b>	