

# Syllabus for 18.06 Linear Algebra, Spring 2013

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	2/6	The Geometry of Linear Equations	1.1–2.1
F	2/8	Singular and Invertible Matrices	2.2–2.3
M	2/11	Matrix Multiplication and Inverses	2.4–2.5
W	2/13	$LU$ Factors from Elimination	2.6
F	2/15	Transposes and Permutations	2.7
M	2/18	(President's Day, Class on Tuesday)	
T	2/19	Vector Spaces and Subspaces	3.1
W	2/20	The Nullspace: Solving $Ax = 0$	3.2
F	2/22	Rectangular $PA = LU$ and $Ax = b$	3.3–3.4
M	2/25	Row Reduced Echelon Form $R$	3.3–3.4
W	2/27	Basis and Dimension and Rank	3.5
F	3/1	The Four Fundamental Subspaces	3.6
M	3/4	<b>Exam 1: Chapters 1 to 3.5</b>	
W	3/6	Graphs and Networks	8.2
F	3/8	Orthogonality	4.1
M	3/11	Projections and Subspaces	4.2
W	3/13	Least Squares Approximations	4.3
F	3/15	Gram-Schmidt and $A = QR$	4.4
M	3/18	Properties of Determinants	5.1
W	3/20	Formulas for Determinants	5.2
F	3/22	Applications of Determinants	5.3
M-F	3/25-29	SPRING BREAK	
M	4/1	Eigenvalues and Eigenvectors	6.1
W	4/3	Diagonalization	6.2
F	4/5	Markov Matrices	8.3
M	4/8	<i>Review for Exam 2</i>	
W	4/10	<b>Exam 2: Chapters 1–5, 6.1–6.2, 8.2</b>	
F	4/12	Differential Equations	6.3
M	4/15	HOLIDAY	
W	4/17	Symmetric Matrices	6.4
F	4/19	Positive Definite Matrices	6.5
M	4/22	Matrices in Engineering	8.1
W	4/24	Similar Matrices	6.6
F	4/26	Singular Value Decomposition	6.7
M	4/29	Fourier Series, FFT, Complex Matrices	8.5, 10.2–10.3
W	5/1	Linear Transformations	7.1–7.2
F	5/3	Choice of Basis	7.3
M	5/6	Linear Programming	8.4
W	5/8	<i>Course Review</i>	
F	5/10	<b>Exam 3: Chapters 1–8 (8.1, 2, 3, 5)</b>	
M	5/13	Numerical Linear Algebra	9.1–9.3
W	5/15	Computational Science	18.085
		<b>Final Exam</b>	