http://web.mit.edu/18.06/www/

Course Information

lecturer: Alexander Postnikov, office E17-428, email apost@math.mit.edu

lectures: Monday, Wednesday, Friday 11 am, room 54-100

course administrator: Michael Andrews, office E17-301B, email mjandr@math.mit.edu

website: Check the course website http://web.mit.edu/18.06/www/ periodically for problem sets, practice exams, problem set and exam solutions, announcements, information on your recitation section, and all other course information. The website includes links to

- Gradebook and Membership modules, where you can view your grades and change your recitation section,
- Piazza (piazza.com/mit/fall2014/1806/home), where you can ask and answer questions.

textbook: Gilbert Strang, *Introduction to Linear Algebra,* 4th edition.

recitations: All recitations are on Tuesday. You must enroll in a specific recitation section. They are listed on http://web.mit.edu/18.06/. Your homework and exams will go to that section.

problem sets: Homework will be posted weekly in the Problem Sets section of the website. There will be one problem set due each week, except the weeks with midterm exams. Assignments will be due on Thursday, **before** 4 pm, in room E17-131.

Please staple the pages together and clearly write your name, your recitation section, and the name of your recitation instructor on your problem set solutions.

cooperation policy: Cooperation on problem sets is permitted, but all solutions must be written up independently and you must list your collaborators on the problem set. You should first try to solve each problem yourself, otherwise you will not learn much from hearing the solution.

exams: Three midterm exams in Walker Memorial at lecture time:

- Wednesday, October 1
- Wednesday, November 5
- Wednesday, December 3

One final exam (time and location TBA).

There will be no makeup exams. Hint: Don't miss the exams!

grading: The final grade is based on problem sets (%15), midterm exams (%15 each), and final exam (%40).

questions: Concerns about grades, homework, exams: talk to your recitation instructor (not the lecturer).

If you have a question about lecture material, methods to solve particular type of problem, etc., then please post it on Piazza. Your classmates and/or instructors will reply with suggestions or hints.

Also please don't hesitate to ask questions during lectures and recitations.

18.06 Fall 2014 — Syllabus

01	Wed, 09.03	The Geometry of Linear Equations	1.1–2.1
02	Fri, 09.05	Elimination with Matrices	2.2–2.3
03	Mon, 09.08	Matrix Operations and Inverses	2.4–2.5
04	Wed, 09.10	LU and LDU Factorization	2.6
05	Fri, 09.12	Transposes and Permutations	2.7
06	Mon, 09.15	Vector Spaces and Subspaces	3.1
07	Wed, 09.17	The Nullspace: Solving $Ax = 0$	3.2
	Fri, 09.19	(-: *Student Holiday – no classes* :-)	
08	Mon, 09.22	$Ax = b$ for nonsquare A, Row Reduced Echelon Form	3.3–3.4
09	Wed, 09.24	Independence, Basis, Dimension	3.5
10	Fri, 09.26	The Four Fundamental Subspaces	3.6
11	Mon, 09.29	Exam Review	
12	Wed, 10.01	**EXAM 1**	
13	Fri, 10.03	Graphs and Networks	8.2
14	Mon, 10.06	Orthogonality	4.1
15	Wed, 10.08	Projections and Subspaces	4.2
16	Fri, 10.10	Least Squares Approximations	4.3
	Mon, 10.13	(-: *Columbus Day – no classes* :-)	
17	Wed, 10.15	Gram-Schmidt and $A = QR$	4.4
18	Fri, 10.17	Fouries Series and Orthogonal Polynomials	8.5
19	Mon, 10.20	Properties of Determinants	5.1
20	Wed, 10.22	Formulas for Determinants	5.2–5.3
21	Fri, 10.24	Eigenvalues and Eigenvectors	6.1
22	Mon, 10.27	Similar Matrices, Diagonalization, and Powers of A	6.2, 6.6
23	Wed, 10.29	Markov Matrices	8.3
24	Wed, 10.31	Differential Equations	6.3
25	Mon, 11.03	Exam Review	
26	Wed, 11.05	**EXAM 2**	
27	Fri, 11.07	Symmetric Matrices	6.4
	Mon, 11.10	(-: *Veterans Day – no classes* :-)	
28	Wed, 11.12	Positive Definite Matrices	6.5
29	Fri, 11.14	Defective Matrices: Jordan Form	6.6
30	Mon, 11.17	Singular Value Decomposition	6.7
31	Wed, 11.19	Matrices in Engineering	8.1
32	Fri, 11.21	Linear Transformations	7.1–7.2
33	Mon, 11.24	Choice of Basis	7.3
34	Wed, 11.26	Linear Programming	8.4
	Fri, 11.28	(-: *Thanksgiving – no classes* :-)	
35	Mon, 12.01	Exam Review	
36	Wed, 12.03	**EXAM 3**	
37	Fri, 12.05	Complex Matrices and FFT	10.1–10.3
38	Mon, 12.08	Numerical Linear Algebra	9.1–9.3
39	Wed, 12.10 W	Course Review	
	TBA	**FINAL EXAM**	