MATH 2210 APPLIED LINEAR ALGEBRA, Sections 005
Fall 2009 semester

The University of Connecticut/Storrs
Instructor: Dr. Biao Yin
Text: Linear Algebra and Its Applications, 3rd edition, updated by David C. Lay (Pearson/Addison-Wesley, 2006); ISBN 0-321-28713-4

Readings and Problems. Asterisk indicates optional section, to be considered if time permits.

Week	Section	Topic	Starting page / exercise numbers
1	1.1	Linear systems	p. 11/1,3,5,6,8,9,13,30,32
	1.2	Row reduction, echelon forms	p. 25/1-5,7-15 odd,14,23,25,27
	1.3	Vector equations	p. 37/5,6,10,11,13,15,21,26
2	1.4	Matrix equation $Ax = b$	p. 47/1-4,7,9,11,17,29,31,32
	1.5	Solution sets	p. 55/1-12,19,21,29-31
	1.6	Applications of linear systems *	p. 63 /7,8,11
3	1.7	Linear independence in R^n (I)	p. 71/1-4,7-9,13,19-21,25-27,33,34
	1.8	Intro to linear transformations	p. 79 /1-21 odd,14,31-33
4	1.9	Matrix of a linear transformation	p. 90 /1-8,11-12,16,17,21,25-28
	2.1	Matrix operations	p. 116 /1-3,5,7,8,10,12,22-25
5	2.2	Inverse of a matrix	p. 126/3,6,7,10,13,18,27,31,32,35
	2.3	Invertible matrices	p. 132 /1-7 odd,17,18,23,24,26,27
		EXAM 1 (Date:10/02)	
6	3.1	Introduction to determinants	p. 190/1,2,9,11,25-27,37,38
	3.2	Properties of determinants	p. 199/1-5,7,21,22,29
	3.3	Cramer's Rule	p. 209/5,7,15,23,27
7	2.8	Subspaces of R^n	p. 173/1,5,7,9,11,21
	2.9	Dimension and rank (I)	p. 180/1,5,9,13,20
	4.1	Vector spaces and subspaces	p. 223/1,3,5,8,10,12,13,21
8	4.2	Null and column space of a l.t.	p. 234/1-11 odd,15,18,21,27,28
	4.3	Linear independence, bases (II)	p. 243/1-3,6,9,11,13-15,20,25
	4.4	Coordinate systems	p. 253/1-3,7-11 odd
9	4.5	Dimension (II)	p. 260/2,3,9,11,13,19,20
	4.6	Rank (II)	p. 269/1-7,13,17
10	4.7	Change of basis	p. 276/1-5,7
	5.1	Eigenvectors and eigenvalues	p. 308/1-8,13,17,19,25
		EXAM 2 (Date:11/06)	
11	5.2	Characteristic equation	p. 317/1,3,5,9,10,17,20
	5.3	Diagonalization	p. 325/1,5,7,8,11,21,23
	5.4	Eigenvectors and linear transforms.	p. 333/1,3,11,13
12	5.5	Complex Eigenvalues	p. 341/1,3,13,14
	6.1	Inner product, length and orthogonality	p. 382/1,10,15,17
13	6.2	Orthogonal sets	p. 392/3,5,9,13,17,27
	6.3	Orthogonal projections	p. 400/1,3,7,11
14	6.4	Gram-Schmidt process *	p. 407/3,5,7,9,13
	7.1	Diagonalization of symmetric matrices	p. 454/7,13,17,22,23

2210Q:Applied Linear Algebra

- **Class meets:** MWF(2:00--2:50pm),MSB-315.
- **Text:** *David C. Lay*, **Linear Algebra and Its Applications**, 3rd edition; (ISBN# 0-321-28713-4).
- **Instructor:** Dr. Biao Yin
- **Office Hour:** Mon. 10:00am-12:00pm, Wed. 3:00-4:00pm,MSB-232.
- **Email:**yin@math.uconn.edu

Course Policy

Syllabus: You may find a copy of our section's syllabus here. It is subject to adjustment. Any updated information should be posted on this web page. However, the most accurate information will be from the lectures.

Softwares and Internet: Students are encouraged to use math softwares such as Matlab and Maple for assistance in this course. Students can get more knowledge about linear algebra online. An essay on some interesting applications of linear algebra is recommended to submit at the end of this semester. Depending on the qualities of the essays, students will get extra credits for their final grades.

Homework and Quizzes: Homework problems will be assigned at each lecture from the list in the syllabus. You are responsible for completing all assigned problems in a timely fashion. Although homework problems will not be graded, *there will be weekly short quizzes based on the homework problems.* The quizzes will usually be given at the end of the class period. There will be no make-up for quizzes.

Attendance and Make-up Policy: Class attendance is expected. Poor attendance will be used to decide borderline grade situations. Any changes to the syllabus, homework assignment and any announcement for the midterms and final exam will be made in the lectures. There will be no make-ups for quizzes. A make-up midterm will be given *only* if you have a valid reason such as serious illness (not a slight cold) or a family emergency, *and* provide an acceptable, written excuse (*not an email message*), or you will receive a grade of zero. If possible (particularly if you want to be sure that your excuse is an acceptable one), contact me before missing an exam.

Updated Announcement and Material: The second quiz will be given next Monday (10/12), Please prepare for it.

Here are solutions to quiz 1.

Grading Policy

Your grade will be determined on the following 500-point basis:

- 100 points for the quizzes.
- 100 points for each of the two in-class midterm exams.
- 200 points for the final exam.

For comments regarding this page, please send email to yin@math.uconn.edu