Applied Linear Algebra - 2210Q - (Fall 2008)

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Office Hours: MW1:00 - 2:00 or by appointment

Schedule:
MWF 12:00-12:50 in MSB 219

Final Exam

Wed Dec 10, 10:30 - 12:30
Practice Problems: pages 4-6 (new), pages1-3 (same as for midterm 2)
and their solutions: pages 4-6 , pages 1-3

Homework

Exams:
Midterm 1: Mon Oct 6, 12:00 - 12:50 in MSB 219
Midterm 2: Fri Nov 14, 12:00 - 12:50 in MSB 219
Practice problems for Midterm 2 and their solutions.

Final Exam: Wed Dec 10, 10:30 - 12:30

Description: Systems of equations, matrices, determinants, linear transformations on vector spaces, characteristic values and vectors, from a computational point of view. The course is an introduction to the techniques of linear algebra with elementary applications.

Prerequisites: MATH 1132(116) or 121. Recommended Preparation: grade of C- or better in MATH 1132(116). Not open for credit to students who have passed MATH 3210(215).

Text: David C. Lay, *Linear Algebra and its Applications*, third edition, Addison/Wesley.

Quizzes: We will have in class quizzes, aproximately one per week. The quizzes will be announced in the class before. There is no make-up for a quiz, but I will drop your two lowest quiz scores when computing the final grades.

Homework: I will assign homework problems every week here. You should work out each of these problems in detail every week. Homework will not be graded, but they are the most essential part of your learning process. Don't fall behind.You are encouraged to work out the problems in groups, but write down your own solution.

Course Grade:

Midterm 1	25 %
Midterm 2	25 %

Final Exam	35 %
Quizzes	15 %

Homework

Section	Assignments
1.1 Systems of linear equations	7, 16, 19, 22, 25, 33
1.2 Row reduction and echelon forms	1, 7, 10, 12, 14, 24, 25, 27
1.3 Vector equations	5, 9, 11, 18, 22, 24, 29
1.4 The matrix equation Ax=b	1, 4, 11, 13, 16, 17, 21, 39
1.5 Solution sets of linear systems	2, 4, 6, 7, 10, 12, 14, 29, 30, 31, 32
1.6 Applications of linear systems	7, 12
1.7 Linear independence	9, 12, 13, 21, 22, 27, 28
1.8 Linear transformations	3, 9, 13, 17, 19, 21
1.9 The matrix of a linear transformation	15, 16, 17, 20
2.1 Matrix operations	2, 5, 7, 11, 15, 16, 18, 22, 24
2.2 Inverse of a matrix	3, 6, 10, 13, 17, 21, 24, 31
2.3 Invertible matrices	5, 7, 11, 13, 17, 33
3.1 Introduction to determinants	3, 5, 11, 25, 27, 37, 41
3.2 Properties of determinants	5, 7, 15, 19, 21, 31, 39
4.1 Vector spaces and subspaces	1, 3, 5, 11, 15, 21, 33
4.2 Null spaces, column spaces ...	1, 5, 11, 15, 21, 25, 31
4.3 Linearly independent sets; bases	3, 5, 9, 15, 19, 21, 25
4.4 Coordinate Systems	7, 13
4.5 Dimension of a vector space	3, 5, 9, 11, 15, 19, 23, 27
4.6 Rank	1, 5, 7, 9, 11, 13, 15, 17, 27

5.1 Eigenvectors and eigenvalues	1, 5, 7, 9, 15, 17, 21, 23, 25
5.2 Characteristic equation	5, 9, 15, 21, 23
5.3 Diagonalization	1, 5, 7, 9, 11, 21, 23, 31
6.1 Inner product, length and orthogonality	11, 17, 19, 27, 31
6.2 Orthogonal sets	7, 9, 11, 23, 26
6.3 Orthogonal projections	
6.4 Gram Schmidt Process	1, 3, 5, 7, 9, 11