Introduction to Linear Algebra
Math 250, Section B1
Summer 2010

Time and Location: MTWTh, 10:10-12:-05am, ARC 105, Busch

Instructor: Yusra Naqvi

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Office Hours:	Mon 1:30-3:00pm

Prerequisites: Calculus II

Textbook: Spence, Insel, and Friedberg: *Elementary Linear Algebra: A Matrix Approach*, 2nd Edition, Prentice Hall, 2008. (ISBN 978-0-13-187141-0)

Course Webpage: http://www.math.rutgers.edu/~ynaqvi/math250su10.html

Online resources: The authors of the textbook have an online companion website which contains supplementary material and true/false tests. This is available at
http://cwx.prenhall.com/bookbind/pubbooks/spence/

Course topics: This course covers systems of linear equations, Gaussian elimination, matrices and determinants, vectors in two- and three-dimensional Euclidean space, vector spaces, and introduction to eigenvalues and eigenvectors.

Absences: You are expected to attend every class. This is especially important for summer courses, which tend to move very fast. An absence due to illness or family emergency may be excused, provided that you can supply acceptable written evidence if required, and that you notify the lecturer *as soon as possible*.

Homework: A list of suggested homework problems for each chapter can be found on the course webpage. The first 10 minutes of each class will be spent discussing problems for the chapters covered in the previous lecture and any questions that students may have. It is ***strongly*** recommended that you attempt to solve all of the suggested problems, and all quiz problems will be variants of these homework problems. It is very important to solve the homework for each lecture before the next one in order to keep up with the class.

Quizzes: An unannounced ten minute quiz may be given during any class meeting, and no make-ups will be given for these. There will be a total of about 10 quizzes. The lowest quiz grade will be dropped in order to accomodate unavoidable absences.

Exams: There will be two eighty-minute midterm exams and a three-hour cumulative final exam. Make-up exams will be only be allowed if you can supply *acceptable* written evidence, and if you notify the lecturer *before the end of the missed exam.*

Midterm Exam 1:	Monday, June 14
Midterm Exam 2:	Monday, June 28
Final Exam:	Thursday, July 8

Calculator: No calculators are allowed during quizzes and exams. However, students may use calculators or computers to solve homework problems.

Grading: The term grade will be based on the results of the examinations, and on class participation, which will be measured in various ways, including quizzes. It will be determined using the following point distribution:

Quizzes	100
1st exam	100
2nd exam	100
Final exam	200
Total	500

Course Outline: The following plan for the course is tentative and may be subject to changes.

Lecture	Date	Sections	Topics
1	T 6/1	1.1, 1.2	Matrices, Vectors, and Linear Combinations
2	W 6/2	1.3 1.4	Systems of Linear Equations Gaussian Elimination
3	Th 6/3	1.6 1.7	Span of a Set of Vectors Linear Dependence and Linear Independence
4	M 6/7	1.7 2.1	Homogeneous Systems Matrix Algebra
5	T 6/8	2.3 App. E 2.4	Invertibility and Elementary Matrices Uniqueness of Reduced Row Echelon Form Inverse of a Matrix
6	W 6/9	2.5 2.6	Partitioned Matrices and Block Multiplication LU Decomposition of a Matrix
7	Th 6/10		Review for First Midterm
8	M 6/14		**FIRST MIDTERM EXAM**
9	T 6/15	3.1 3.2	Determinants; Cofactor Expansions Properties of Determinants
10	W 6/16	4.1 4.2	Subspaces Basis and Dimension
11	Th 6/17	4.3	Column Space and Null Space of a Matrix
12	M 6/21	5.1	Eigenvalues and Eigenvectors
13	T 6/22	5.2 5.3	Characteristic Polynomial Diagonalization of a Matrix
14	W 6/23	5.5	Applications of Eigenvalues
15	Th 6/24		Review for Second Midterm
16	M 6/28		**SECOND MIDTERM EXAM**
17	T 6/29	6.1	Geometry of Vectors; Projection onto a Line
18	W 6/30	6.2 6.3	Orthogonal Vectors; Gram-Schmidt Process Orthogonal Projection; Orthogonal Complements
19	Th 7/1	6.4 6.5	Least Squares; Normal Equations Orthogonal Matrices
20	T 7/6	6.6	Symmetric Matrices; Quadratic Forms Spectral Decomposition for Symmetric Matrices
21	W 7/7		Catch up and review
22	Th 7/8		**FINAL EXAM**