Linear Algebra Syllabus
MATH 2418-501
MW 7:00-8:15 p.m.
GR 3.302
Spring 2006

Instructor: Dr. Paul Stanford
Text Book: *Elementary Linear Algebra*, ninth edition, by Howard Anton.

Contact Information
Email: paul.stanford@utdallas.edu, Web Site: www.utdallas.edu/~paul.stanford/
Office hours: MTWR 4:00-5:00 p.m. in ECSN 3.910, or by appointment.

Prerequisite: MATH 2419 (Calculus), or consent of instructor.

Corequisite: Students must be enrolled in one of the problem sessions MATH 2018.801 or MATH 2018.803.

Teaching Assistant: Ramanjit Sahi in FO 2.602.

Course Description
The main goal of the course is the presentation of some fundamental techniques of linear algebra. The concepts of vector spaces, matrices, determinants, inverses, eigenvalues and eigenvectors will be developed.

Chapter 1: Systems of Linear Equations and Matrices (sections 1.1, 1.2, 1.3, 1.4, 1.5, 1.6 and 1.7)

Chapter 2: Determinants (sections 2.1, 2.2, 2.3, and 2.4).

Chapter 3: Vectors in 2-Space and 3-Space (sections 3.1, 3.2, 3.3, and 3.5).

Chapter 4: Euclidean Vector Spaces (sections 4.1, 4.2, 4.3, and 4.4).

Chapter 5: General Vector Spaces (sections 5.1, 5.2, 5.3, 5.4, 5.5, and 5.6).

Chapter 6: Inner Product Spaces (6.1, 6.2, 6.3, 6.4, 6.5, and 6.6).

Chapter 7: Eigenvalues and Eigenvectors (sections 7.1, 7.2, and 7.3).

Chapter 8: Linear Transformations (sections 8.1, 8.2, 8.3, 8.4, 8.5, and 8.6) as time permits.

Examinations
There will be two regular examinations and a final examination. NO MAKE-UPS.

Missed exams are a zero. See below for dates and the calculation of grades. Graphing calculators will NOT be allowed: only non-alpha display scientific calculators are permitted.

All students are expected to take the examinations at the announced time. Cheating will NOT be tolerated. Students are required to inform the lecturer of suspected honor code violations. On all problems, you must show your work. No work, no credit (even for correct answers). In general, there will be no make up exams or quizzes. There will be no incompletes except in the direst of situations.

Problem Assignment
Problems will be assigned on a regular basis. See homework below. Answers to most of these problems are given at the back of the textbook. Complete solutions to many of these problems may be found in the Solutions Manual, which is on reserve at the library (and may be available in the bookstore). You should work several problems of each type, and working more than the class assignments is strongly encouraged. Do not use the solutions at the back of the textbook before you have exhausted all possibilities (including asking the TA and the instructor). Most of these problems will be discussed in the problem sections.

Problem Sessions and quizzes
Problem session attendance is required. During each of the problem solving meetings a quiz will be given, lasting about 15-20 minutes. There will be a total of approximately 10 quizzes. The TA conducting each section will answer questions on the assignments, supply additional background material, discuss the previous quiz, comment on your exams, and may ask you to work problems. Occasionally, the problem section may be used to remind you of the material covered in previous courses and deemed essential to the present course. At times you are strongly encouraged to ask questions during these problem sections.

Calculation of Grade
Each quiz is worth 25 points. The lowest two quiz scores will be dropped. The remaining quizzes are counted and converted to a percentage, giving a possible total of 100 points. Each regular examination is also worth 100 points. The comprehensive final examination is worth 200 points. This score cannot be dropped.

These scores are weighted so that the final contributes 40% toward the overall grade. The remaining 60% is made up from the two exams and the quiz average (after dropping the two lowest quizzes). For these, the highest score has a weight of 30%, the next highest has a weight of 20%, and the lowest score has a weight of 10%. Note that none of these can be completely dropped.

Grade Scale
[97,100] A+
[93,97) A

[90,93) A-
[87,90) B+
[83,87) B
[80,83) B-
[77,80) C+
[73,77) C
[70,73) C-
[67,70) D+
[63,67) D
[60,63) D-
[0, 60) F

Midterm grades
Midterm grades will be computed and submitted to the records office when requested. This grade will be computed in the following manner:
Average of all quizzes up to this time (no drops) 50%.
Average of all exams up to this time (no drops) 50%.

Important Dates (and see Academic Calendar)
Monday, January 9th: First Day of Class.
Monday, January 16th: University Holiday: Martin Luther King Jr. Day.
Wednesday, January 25th: Last day to drop without a W.
Monday, February 13th: WF or WP withdraw period begins.
Wednesday, February 15th: **Exam I** (subject to change).
Monday, March 6: Spring Break Begins.
Saturday, March 11: Spring Break Ends.
Thursday, March 16th: Last day to withdraw with WF/WP.
Wednesday, March 29th: **Exam II** (subject to change).
Monday, April 24th: Last Day of Class.

Monday May 1st: Comprehensive Final, 7:00 p.m. - 9:45 p.m.

Homework Assignments

Chapter 1
Section 1.1: 1-9 odd, 11, 12, 13
Section 1.2: 1-17 odd, 23
Section 1.3: 1-21 odd, 25, 29
Section 1.4: 1-11 odd, 21
Section 1.5: 1-11 odd
Section 1.6: 1-25 odd
Section 1.7: 1-9 odd, 17

Chapter 2
Section 2.1: 1-9 odd 17-23 odd
Section 2.2: 1-11 odd, 12, 13

Section 2.3: 1-11 odd, 14, 15
Section 2.4: 1-13 odd, 17, 20

Chapter 3
Section 3.1: 1-13odd
Section 3.2: 1-9 odd
Section 3.3: 1-19 odd
Section 3.5: 1-29 odd

Chapter 4
Section 4.1: 1-19 odd
Section 4.2: 1-21 odd
Section 4.3: 1-21 odd
Section 4.4: 1-19 odd

Chapter 5
Section 5.1: 1-17 odd
Section 5.2: 1-21 odd, 22
Section 5.3: 1-19 odd
Section 5.4: 1-19 odd
Section 5.5: 1-13 odd
Section 5.6: 1-13 odd

Chapter 6
Section 6.1: 1-21 odd
Section 6.2: 1-17 odd
Section 6.3: 1-17 odd, 24, 29
Section 6.4: 1-9 odd
Section 6.5: 1-11 odd
Section 6.6: 1-11 odd

Chapter 7
Section 7.1: 1-21 odd
Section 7.2: 1-21 odd, 22
Section 7.3: 1-9 odd

Chapter 8
Section 8.1: 1-27 odd
Section 8.2: 1-19 odd
Section 8.3: 1-15 odd
Section 8.4: 1-17 odd
Section 8.5: 1-17 odd
Section 8.6: 1-11 odd