MATH 2853
Elementary Linear Algebra

Spring 2005

Instructor: Dr. Scott Gordon, 324 Boyd.

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Time and Location: M, W, F 10:00–10:50, 301 Boyd.

Office Hours:

M	12:30–3:30*
W	12:30–3:30*
Th	10:00–11:00, 12:00–3:00

(*2:30–3:30 in 302 Boyd)

If you would like to see me but cannot come during one of these times, please call first or make an appointment.

Textbook: *Elementary Linear Algebra: A Matrix Approach*, by Spence, Insel, and Friedberg. We will cover Chapters 1–3 and parts of 4–6.

Course Description: Methods of solving systems of linear equations (Gaussian elimination, Gauss-Jordan elimination, Cramer's Rule, LU-decomposition), vectors (dot product, projection, linear independence, span, basis and dimension), matrices (properties of matrices, matrix algebra, determinants, eigenvalues and eigenvectors), linear transformations, applications.

Attendance Policy: If you have four or fewer unexcused absences during the semester, your lowest test score and lowest quiz score will be dropped. If you miss a class, you must contact me with a reason within two days of the absence in order to have the absence excused. I may not excuse your absence if I feel that you are absent excessively and not performing adequately in the class.

Homework: I will assign homework exercises after each section. These problems will not be graded, but you may be quizzed on them. I will allow some time during class to discuss the problems and I encourage you to use my office hours if you have any questions about them.

Lab Assignments: There will be eight computer lab assignments (using MATLAB) given throughout the semester. They will be worth 10 points each.

Tests and Quizzes: There will be six 30-minute quizzes, worth 40 points each, consisting of problems from homework. There will be five 50-minute tests, worth 80 points each. (See schedule below for test and quiz dates.)

Rescheduling Tests and Quizzes: If you have a valid reason for missing a test or quiz, you may be allowed to reschedule, but you must make arrangements with me at least one week in advance of the test or quiz. If you miss a test or quiz and have not made arrangements with me to take it at another time, you will receive a zero (This may be used as your dropped score).

Grading Errors: In order to have a grade changed as a result of a grading error, you must bring the error to my attention within one week of the time you received the graded test or quiz.

Final: There will be a *cumulative* final exam worth 200 points.

Grading: Your numerical grade will be your total points (on labs, quizzes, tests, and the final) as a percentage of the total number of possible points (800). Your letter grade will be determined according the following grading scale: A: 88–100, B: 76–87, C: 64–75, D: 52–63, F: 0–51.

Withdrawal: March 3 is the last day to withdraw from the course with a grade of W.

First Homework Assignment: p.9 #1, 5, 7, 9, 10, 35, 43, 44.

Testing Schedule

1/21	Quiz 1	3/18	Quiz 4
1/28	Test 1	4/1	Test 4
2/9	Quiz 2	4/13	Quiz 5
2/16	Test 2	4/20	Test 5
2/28	Quiz 3	5/2	Quiz 6
3/7	Test 3	TBA	Final exam

Academic Dishonesty Policy: Any student who engages in any form of academic dishonesty will receive an F for the course. The incident will also be reported to the Office of Student Affairs so that they can determine if further disciplinary action is warranted. Academic dishonesty is defined as one or more of the following:

1. Use of unauthorized information during a test, quiz, or exam.
2. Copying material from another student's paper during a test, quiz, or exam.
3. Giving or receiving information during a test, quiz, or exam.
4. Giving information about the content of a test, quiz, or exam to a student who will be taking the test at a later time.
5. Obtaining unauthorized information about the content of a test, quiz, or exam before taking it.
6. Copying all or part of another student's work on a lab assignment.

Learning Outcomes: The student will have an understanding of:

1. How to perform basic vector operations.
2. How to compute the inverse or determinant of a square matrix.
3. How to compute the LU-decomposition of a square matrix.
4. How to express linear systems of equations in matrix form.
5. How to solve systems of linear equations using Gaussian elimination and Gauss-Jordan elimination.
6. How to solve systems of linear equations using Cramer's Rule.
7. The geometric properties of vectors.
8. The basic properties of real vector spaces and subspaces including properties such as linear independence, span, basis, rank.
9. How to analyze linear transformations.
10. How to compute eigenvalues and eigenvectors of a square matrix.
11. How to diagonalize a square matrix.
12. Use MATLAB to perform basic matrix operations.