MATH 321 Section 01
Fall 2006 MWF 1:30pm-2:20m
382 Administration Building
Dr. Chad A.S. Mullikin

Contact Information :
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General Information : Lectures will be held MWF from 1:00m until 2:50pm in the Administration Building room 382. There will be some class time allowed for solving problems. However, it may be the case that this is not sufficient. If you need more help you are *encouraged* to come talk to me during my office hours.

My office hours (AB 205) will be from 9:10-11:10pm MTRF and 11:00-1:00 W (or by appointment).

Textbook : Elementary Linear Algebra 9^{th} ed., Anton.

Course Description : This course develops understanding of linear objects in finite dimensional Euclidean space as well as their applications. Such applications include topics such as solving multiple systems of linear equations, modeling physical systems in a computer friendly way, as well as general techniques that will be valuable in further study of mathematics We will develop geometric intuition and extend the student's capacity to visualize multiple dimensions.

Homework and Tests : It is critically important that a student of mathematics work problems. Simply following along in class is rarely sufficient. I will assign homework. From this homework set I will select several problems (about 4 or 5) that will be graded. Since you will not know which problems will be graded it is important to work all of them. If you have any questions please feel free to email me or see me in my office hours. If you can not make my scheduled office hours then let me know and we will set up an alternate time.

Homework is to be put on the desk in the classroom at the **beginning** of the class they are to be collected. Homework will not be accepted late for any reason.

There will be two closed book in class exams as well as a cumulative final examination. The in class exams will consist of roughly 6 or 7 problems typical of the homework. The tentative dates for these exams are as follows.

Test 1: February 16, 2007
Test 2: March 30, 2007
Final Exam: May 4, 2007 1:00-3:00pm

Any student with a valid excuse for missing an exam must obtain permission to reschedule well before the examination date. Please let me know of any conflicts immediately.

Attendance : Attendance is required.

Grading : The assignments are weighted as follows:

Tests :30%
Homework :50%
Final Exam :20%

Letter grades are awarded according to the following:

$97 \leq$ **A+**
$93 \leq$ **A** < 97
$90 \leq$ **A-** < 93
$87 \leq$ **B+** < 90
$83 \leq$ **B** < 87
$80 \leq$ **B-** < 83
$77 \leq$ **C+** < 80
$73 \leq$ **C** < 77
$70 \leq$ **C-** < 73
$67 \leq$ **D+** < 70
$63 \leq$ **D** < 67
$60 \leq$ **D-** < 63
F < 60

Accommodations : Students who want to receive disabilities accommodations should contact Mrs. Dunklin, Coordinator for Student Support Services at 380-3470 as soon as possible so that warranted accommodations can be arranged. Her office is located in Student Academic Services, 1st floor, Administration Building.

Withdrawal : Only under extreme circumstances will I award a student a W or WF after the deadline March 19. These grades are reserved for students who for some reason cannot complete the remainder of the course, i.e., students who are physically unable to return to the classroom.

Tentative Schedule : This schedule is subject to change as needed.

Jan 10 : Systems of Linear Equations

Jan 12 : Gaussian Elimination

Jan 15 : M.L.K. Day

Jan 17 : Matrices and Matrix Operations

Jan 19 : Inverses

Jan 22 : Finding inverse matrices

Jan 24 : Diagonal, Triangular, and Symmetric Matrices

Jan 26 : The Determinate Function

Jan 29 : Determinants and Row Reduction

Jan 31 : Properties of the Determinate Function

Feb 02 : Cofactor Expansion; Cramer's Rule

Feb 05 : Vectors (Arithmetic, Geometry, Norm)

Feb 07 : Dot Product, Projections

Feb 09 : Cross Product

Feb 12 : Lines and Planes

Feb 14 : Review

Feb 16 : **Test 1**

Feb 19 : Mardi Gras!

Feb 21 : Mardi Gras!

Feb 23 : Euclidean n-space

Feb 26 : Linear Transformations $T : \mathbb{R}^n \longrightarrow \mathbb{R}^m$

Feb 28 : Properties of Linear Transformations from $\mathbb{R}^n$ to $\mathbb{R}^m$

Mar 02 : Real Vector Spaces

Mar 05 : Subspaces

Mar 07 : Linear Independence

Mar 09 : Basis and Dimension

Mar 12 : Row Space, Column Space, and Null Space

Mar 14 : Rank and Nullity

Mar 16 : Inner Products

Mar 19 : Angle and Orthogonality in Inner Product Spaces

Mar 21 : Orthonormal Bases, Gram-Schmidt Process, QR-Decomposition

Mar 23 : Best Approximation, Least Squares

Mar 26 : Orthogonal Matrices, Change of Basis

Mar 28 : Review

Mar 30 : **Test 2**

Apr 02 : Spring Break

Apr 04 : Spring Break

Apr 06 : Spring Break

Apr 09 : Spring Break

Apr 11 : Eigenvalues and Eigenvectors

Apr 13 : Diagonalization

Apr 16 : Orthogonal Diagonalization

Apr 18 : General Linear Transformations, Kernel, and Range

Apr 20 : Inverse Linear Transformations

Apr 23 : Matrices of General Linear Transformations

Apr 25 : COOL Day

Apr 27 : Similarity

Apr 30 : Review

May 04 : **FINAL EXAMINATION 1:00-3:00pm**

Caveat Discipulus: This syllabus is subject to change as necessary.