



DEPARTMENT OF THE ARMY
UNITED STATES MILITARY ACADEMY

West Point, New York 10996

REPLY TO
ATTENTION OF
MADN_MATH

21 August 2008

MA371 INSTRUCTIONAL MEMORANDUM

Professor: Dr Edward Fuselier

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Course Webpage: <http://www.dean.usma.edu/math/people/Fuselier/Fall2008/MA371/index.html>

1. **Course Philosophy:** The goal of this course is to build a solid foundation in the theoretical, applied, and computational aspects of linear algebra and an appreciation for its applications. The course will emphasize the following topics:

1. Solving systems of linear equations using matrices.
2. Matrix algebra.
3. Matrix factorizations.
4. Vector spaces and subspaces.
5. Eigenvectors and eigenvalues.
6. Orthogonality and least squares.
7. Diagonalization and SVD (time permitting).

2. **Text and Software:** Lay's Linear Algebra and its Applications, 3rd Ed., Student study guide and online package. We will be using MATLAB or OCTAVE to support the lesson objectives. Instructions for installing MATLAB are on the course webpage. You will only be able to use MATLAB while connected to the USMA network. However, OCTAVE is free and can be used while offline. I recommend having both installed.

3. **Course Evaluation Plan:**

Event	Points	Percentage
TEE	300	30%
WPR (2)	300	30%
Term Project	150	15%
Quizzes/Presentation(s) Graded Homeworks	250	25%
	1000	100%

4. **Grading:**

Final course grades will follow the Department of Mathematical Sciences guidelines:

<u>Percentage Mark</u>	<u>Grade</u>
$90 \leq \text{Mark} \leq 100$	A
$80 \leq \text{Mark} < 90$	B
$70 \leq \text{Mark} < 80$	C
$65 \leq \text{Mark} < 70$	D

Cadets who score less than 50% on the TEE, regardless of their final course average, or whose final course average is less than 65%, may fail the course.

5. Expectations and Miscellanea:

MA371 is an upper division mathematics course; the difficulty of the material and the graded assignments reflect this. Students are expected to prepare for class by surveying the daily assignment before class, attempting the practice problems and preparing questions for the class. After class, you should read the text, organize the lesson objectives and complete the suggested problems. **If you have any difficulties with the material, request AI as soon as possible!**

Before each class, skim the reading and try the "Do Problems" at the end of the lesson in your text. Bring your textbook and notebook to class everyday. I don't want to waste time writing all of the definitions on the board; they are in your book. Even though we'll be learning out of the book, take organized notes. After the day's lesson, try to do the suggested problems corresponding to that lesson.

Homework will be assigned and turned in on a weekly or biweekly basis. Some of the homework will be taken from the suggested problems. There will usually be one or two problems in each assignment to be completed using technology. All graded homework must be prepared and submitted in accordance with the DDWW and The Little Brown Handbook.

We will be using software that is new to most of you. It is important that you do not get behind. Make sure you get MATLAB working as soon as possible and keep up with the computer assignments. Everything you need is either on the CD included in your book or will be discussed in class. I will do my best to demonstrate how to use MATLAB each day in class. I do not want you to waste too much time dealing with technology troubles; **when you get lost or have technology issues, see me immediately!**

This is a 3 credit hour course following the Day 1 schedule. Attendance at a WPR is mandatory. Except in emergencies, cadets will not make any appointments that could preclude their attendance for a WPR. Any cadet missing a WPR will be required to take a make-up exam. Absences do not excuse you from submitting projects and other out of class assignments on time. Unless otherwise noted, all assignments are due at the beginning of class on the due date. The standard deduction for late submissions is:

< 24 hours late	10%
< 48 hours late	25%
< 72 hours late	50%
> 72 hours late	67% (but it still must be submitted else receive a zero)

Dr. Edward Fuselier
Course Director MA371