



DEPARTMENT OF THE ARMY
UNITED STATES MILITARY ACADEMY

West Point, New York 10996

REPLY TO
 ATTENTION OF
 MADN_MATH

21 August 2008

MA386 INSTRUCTIONAL MEMORANDUM

Professor: Dr Edward Fuselier
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Course Webpage: <http://www.dean.usma.edu/math/people/Fuselier/Fall2208/MA386/index.html>

1. **Course Philosophy:** The goal of this course is to build a solid foundation in numerical analysis (theoretical, applied and computational) and an understanding of its applications. The course will emphasize the following topics:

1. Solutions of equations in one variable.
2. Interpolation and approximation.
3. Numerical differentiation and integration.
4. Direct and iterative methods for solving linear equations.
5. Computational aspects of approximation theory (time permitting).

2. **Text and Software:** Numerical Analysis, Eighth Edition, by R. L. Burden and J. D. Faires. We will be using MATLAB or OCTAVE to support the lesson objectives. Instructions for installing MATLAB and OCTAVE 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	500	28.55%
WPR (2)	400	22.9%
Projects, Research (2-3)	350	20.0%
Quizzes, Presentations, Graded Homework	500	28.55%
	1750	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:

MA386 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 assignments 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" provided on the course webpage. Bring your textbook, notebook, and laptop 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, 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 will be discussed in class. I will do my best to demonstrate how to use MATLAB each day we meet. I do not want you to waste too much time with technology problems; **when you get lost or have any technology issues, see me immediately!**

This is a 3 credit hour course following the Day 2 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 MA386