MATH 242 University of South Carolina
D. Meade Spring 1998

MATH 242 (Section 3) – Elementary Differential Equations

Instructor Professor Doug Meade

Office Hours:	TTh 2:00– 3:30 and by *prior* appointment
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Meeting Times TTh 11:00AM– 12:15AM, LC 303a

Text Required: *Differential Equations*, preliminary edition, by Blanchard, Devaney, and Hall, PWS, 1997. Recommended: *Engineer's Toolkit: Maple V for Engineers*, by Meade and Bourkoff, Addison–Wesley, 1998.

Prerequisite Completion of MATH 142 with a grade of C or better.

Overview Differential equations is one of the "languages" utilized by scientists and engineers to model the physical world. In this course we will learn both how to use differential equations to describe different phenomena and how to analyze differential equations – sometimes without explicitly finding a solution.

One of the main objectives of this course is for you to understand the basic concepts of differential equations well enough to know when, how, and why to apply them in real-world situations and to be able to interpret and communicate the results.

Reaching this goal requires practice at a variety of numerical, graphical, and analytic methods. In contrast to the typical mathematics course, it is not sufficient to be proficient only with the mechanical manipulations. Instead, we will be concentrating on modeling and the understanding of differential equations. In conjuction with this approach to the material, we will learn to use state-of-the-art computer software (Maple) to perform many of the mechanical calculations.

You will also be expected to develop and practice your verbal and written communication skills. You will be required to work in groups during class. It is hoped that you will also find a group to work with outside of class.

Use of Technology The computer will be used extensively in this course. All "programming" will be done using the Maple software package. Maple provides a convenient interface to symbolic, numerical, and graphical interpretations of a variety of mathematical objects. You will be expected to become proficient in the use of Maple for the analysis of differential equations. In particular, you will need to recognize when the use of the computer is appropriate and when hand (or mental) calculations are more more efficient. Supplemental materials will be distributed at appropriate times throughout the semester.

Course Content The course will cover most of the material presented in Chapters 1–5 and 8 of the text. The text preface, and the note to the student, provide additional information about the perspective from which this course will be taught. **Read these pages!**

Grading Your grade in this course will be based on your performance on quizzes, two (2) midterm exams, two (2) group projects, and a final exam. The weights assigned to each of these components will be:

Quizzes	10%
Project	20%
Mid-term exams (2)	40%
Final exam	30%

Course grades will be determined according to the following scale:

A	90 –100
B	80 – 89
C	70 – 79
D	60 – 69
F	0 – 59

Note that the deadline to drop this course with a grade of W is Friday, February 20, 1998.

Exams There will be two (2) exams during the semester. *Tentative* dates and topics for these exams are:

Thursday, February 12
Tuesday, March 24

There will be no make-up exams. If you miss one exam due to a documented reason of illness, family emergency or participation in a University sponsored event, your score on the final exam will be used to replace the missing exam score. Excuses such as oversleeping, forgetting the time or location of the exam, and lack of studying are explicitly noted as unacceptable grounds for missing an exam.

A comprehensive final will be given at 9:00A.M. on Thursday, April 30, 1998.

Quizzes On average, there will be one quiz every other week. Quiz questions will be based on the homework problems and class discussions. Each quiz will be graded on a five (5) point scale. Your quiz grade will be based on the sum of your six (6) highest quiz scores. **There are no makeup quizzes.**

Homework A minimum set of homework problems will be announced for each section that we discuss. We will discuss selected assigned problems in class, but no homework will be collected. *You are responsible for working and understanding all of the assigned problems.*

Study Hints Before each class, you should both review the material from recent sections and read the section to be discussed that day. This will allow you to both understand my presentation of new material and identify questions that you need to resolve within your in-class group time.

Attendance Regular class attendance is important. Consistent with the USC Undergraduate Bulletin, a grade penalty may be applied to any student missing more than three classes (10%) during the semester.

Academic Honesty Cheating and plagiarism will not be tolerated in this course. You will be working in groups in class and are encouraged to discuss homework problems with others. You will have to take all quizzes and exams on your own. Violations of this policy will be dealt with in a manner consistent with University guidelines.