

Stephen Summers (<http://people.clas.ufl.edu/sjs>)

Department of Mathematics

MAP 2302 – Elementary Ordinary Differential Equations

Credit hours: 3

Textbook: R.K. Nagle, E.B. Saff and A.D. Snider, *Fundamentals of Differential Equations and Boundary Value Problems*, Sixth Edition, Addison-Wesley Publishing Company, 2012.

Prerequisites: the calculus sequence

Grading System : Exams: 3 midterms (20% each) – after Chapters 3, 4 and 7, respectively; 1 final (40%) – cumulative

Homework assignments are not graded, but it is essential that you do them thoroughly in order to be in a position to do well on the exams.

A: 90-100, B: 80-89, C: 65-79, D: 50-64, E: 0-49

Minus grades will not be used in this course.

Note: No calculators may be used during exams.

Office hours: MWF, fifth period (or by appointment)

See Home Page for contact information (and more).

Brief Course Description

The purpose of this course is to introduce the student to the study of ordinary differential equations, which are used to describe the evolution and behavior of physical processes in most fields of scientific endeavor, from physics and engineering to economics and sociology. The primary intent of the course is to communicate how to solve large classes of ordinary differential equations either explicitly or implicitly, including linear ordinary differential equations of second order (with constant coefficients), some linear systems of equations, many nonlinear equations of first order, and some special classes of nonlinear second-order equations. Methods of solution include integrating factors, changing variables, the method of undetermined coefficients, the method of variation of parameters, the method of Laplace transforms, and power series methods. We shall illustrate these techniques on real problems from physics and engineering. Chapters 1-5 and 7-8 of the text (see below) will be covered. Note that Chapter 5 will be discussed after Chapter 8, and it is possible that we shall not cover everything we would like to in that chapter.

The student will be expected both to grasp the conceptual structure which will be constructed to the ends stated above, as well as to master the computations which are involved.

The material to be covered includes (Chapters refer to above-named text):

Chapter 1: Sections 1.1-1.2

Chapter 2: Sections 2.2-2.6

Chapter 3: Sections 3.1-3.4

First Midterm Examination

Chapter 4: Sections 4.1-4.10 (excluding 4.8)

Second Midterm Examination

Chapter 7: Sections 7.2-7.6 and 7.8

Third Midterm Examination

Chapter 8: Sections 8.1-8.7

Chapter 5: Sections 5.1-5.2 and 5.6

Final Examination

Current Assignment (<http://people.clas.ufl.edu/sjs/files/ode.pdf>)

– This assignment should be done by Wednesday, September . (No assignment yet.) You do not hand in the homework to be graded. We are currently covering Section 1.1 of the text. The course meets fourth period, Monday, Wednesday and Friday, in Little 125.

Previous Homework Assignments

University Honor Code and Policy on Academic Honesty here (<http://www.dso.ufl.edu/sccr/honorcode.php>).

My policy on class attendance: I do not take a roll call, but it is inadvisable to miss class because I do not merely repeat nor do I examine only what is in the text. If you miss a class, it is your responsibility to find out what happened in class.

My policy on make-up work: There is no opportunity for make-up work afforded to you, unless your absence is an excused one according to the current definition of “excused absence” made by the university. If the latter definition applies to the situation, then you will come to me and we will work out a mutually convenient arrangement. Except in the case of a documented medical emergency, this must be done in advance.

University policy on the accomodation for disabled students:

“Students requesting classroom accomodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accomodation.”

An accomodation will then be worked out within the bounds of the possible with the aim of assuring that the disabled student will be able to benefit fully from the course.

Be sure to see:

The Math Forum Resource Center (<http://forum.swarthmore.edu/differential/differential.html>), on differential equations, with many links, problems and software.