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## MAP 2302 Elementary Differential Equations (Section 3875)

### Time and Location

M W F Period 6 (12:50 – 1:40 pm), LIT 221

### Office hours:

LIT 436, M7, W7 or by appointment. The students are also welcome to call me or use e-mail: [rudyak@ufl.edu](mailto:rudyak@ufl.edu) for communication. For more details, see my schedule.

### Final Exam Time and Date

April 29, 7:30 – 9:30 AM, LIT 221

### Description, Content, and Goals

MAP 2302 is a 3 credit course which gives the basic elementary knowledge necessary for understanding, applying, and solving differential equations of the most usual types (Chapters 1, 2, 4, 6, and 7 of the text). 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 course starts with the concepts of differential equation, its solution, direction field, initial value problem and Euler's method. The next chapter 2 covers certain important classes of ordinary differential equations of first order. Methods of solutions include separability, exactness, integrating factors, first order linear equations, Bernoulli's equations, and second order equations reducible to first order ones.

The course continues with second order linear equations methods (Chapter 4). Mainly, we consider linear equations with constant coefficient, including particular solutions and general solutions by the method of undetermined coefficients and the method of Variations of parameters. Applications include mass-spring oscillators and electrical circuits.

In Chapter 6 generalize methods of results of Chapter 4, via discussing linear differential equations of higher orders.

Chapter 7 covers Laplace transform methods, including properties of the Laplace transform, solution of initial value problems, and applications.

### Literature:

R. Kent Nagle, Edward B. Saff and Arthur David Snider: *Fundamentals of Differential Equations and Boundary Value Problems, 6th Edition*, Pearson Education Inc.

### A Video Lecture Course:

<http://ocw.mit.edu/courses/mathematics/18-03-differential-equations-spring-2010/video-lectures/>

### Quizzes and Exams

We will have 3 quizzes, 15 points each, I will drop the worst one. We have 2 midterm exams, 20 points each, and we have final (cumulative) exam that worthes 30 points. So 100 points together. No formula sheet, no notes, no book, no any kind of electronic devices are allowed on quizzes. For exams, one formula sheet (A4 format, two sided) written by yourself, no Xerox, no tom book pages, etc. are allowed.

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.

We will also assign a voluntary quiz, 5 points (one point to each problem, no partial credits), to those students who wants to make-up their scores.

### Tentative Schedule of Tests

### Grading Scale

The total score of the student is equal to the sum of points. The resulting score determines the letter grade according to the following table (minus grades will not be used for letter grades):

Letter Grade	A	B+	B	C+	C	D+	D	E
Score	100>>90	89>85	84>>79	78>>73	72>>67	66>>60	59>>54	53>>0

### Course Policies

- **University's honesty policy:** UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code". On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (<http://www.dso.ufl.edu/scor/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.
- **Make-up.** If a student misses a quiz/exam and is willing to make-up the test, s/he must submit an excusable documentation.
- **Concerning students with disability.** Students requesting classroom accommodation must first 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 accommodation.
- **Information** on current UF grading policies for assigning grade points. This may be achieved by including a link to the web page: <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>.
- **Evaluations** Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>

### Homework Assignments

