



MAP 2302 – 022F  
Spring 2018



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**Time:** MWF period 3  
**Place:** Little 201  
**Phone:** 352-294-2339  
**Office:** 438 Little Hall  
**Email:** avince@ufl.edu

**Textbook:** Fundamentals of Differential Equations (7th edition)  
by Nagle, Saff, Snider

**Office Hours:** Monday, Wednesday, Friday period 4  
(or by appointment)

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## Homework

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Page 46 #17-25 odd, 33,34  
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Page 365 #1-20 (as many as you want)

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## Topics

### Introduction

- What is a differential equation
- Ordinary – partial; linear – nonlinear
- Order of a differential equation
- Exact vs numerical solutions to a differential equation
- Existence and uniqueness of first order ODEs
- Direction fields Euler's method

### First Order Differential Equations

- Separable DEs
- Linear DEs
- Exact DEs
- Bernoulli equation
- Substitution

### Modeling with First Order Equations

- Population models – logistic equation
- Mixing problems
- Newtonian mechanics
- Heating and cooling

### Linear Second Order Equations

- Spring problems
- Constant coefficients – homogeneous
- Constant coefficients – non-homogeneous
- Variation of parameters
- Undetermined coefficients

### Laplace transform methods

- Laplace transform and the inverse
- Solving initial value problems
- Laplace transform of discontinuous functions, periodic functions, Dirac Delta function
- Convolutions

### Systems of Equations

- Phase plane, equilibrium solutions, trajectories
- Classification of critical points
- Matrix methods for linear systems

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## Messages

# Welcome to Differential Equations

Free tutoring at the Teaching Center, SW Broward Hall. Check [Teaching Center](#) for the time schedule.

Students with disabilities requesting accommodations should first register with the [Disability Resource Center](#) (352-392-8565) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

The course will be conducted in accordance with the [academic honesty policy](#), and policy regarding the use of copyrighted material.

“Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at: [attendance policies](#).

Information on current UF grading policies for assigning grade points may be found at: [grades](#).

Students are expected to provide feedback on the quality of instruction in this course by completing [online evaluations](#). 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/>.

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## Grades

three exams, each of equal weight

- Exam 1: February 7
  - Exam 2: March 19
  - Exam 3: April 23
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(not the recommended method for remembering formulas)

