

Differential Equations

MAP 2302 – 4985 Fall 2019

Time: MWF period 3
Place: Little 207
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)

Links

homework topics messages grades cell phone policy



Homework

```
Page 5 #1-16 odd
Page 13 #3,9,15,23,25,27
Page 21 #2,3
due Wed 28 Aug
Page 46 #17-25 odd, 33,34
Page 54 #7-11 odd, 17-21 odd,33
Page 64 #9-19 odd, 21-25 odd
Page 76 #9,11,13,17,19,21,23
due Fri 6 Sept
Page 100 #3,19,21,25
Page 107 #2
Page 115 #1,6
Page 28 (1.4) #3,5
Page 164 (4.2) #1,5,13,17,26,37
Page 173 (4.3) #9,11,13,21,23,28,32,33 (Lecture dates: 2/16 and 2/19)
Page 220 (4.9) #1,3,9 (Lecture 2/23)
Page 180 (4.4) #11,15,29,31 (Lecture 2/28)
Page 185 (4.5) #7,19,27 (Lecture 2/28)
Page 191 (4.6) #1,3,5 (Lecture 3/2)
Page 200 (4.7) #41 (Lecture 3/2)
Page 360 (7.2) #9,17,18,23,24,29bcd (Lecture 3/12)
Page 365 (7.3) #1-20 (as many as you want) (Lectures 3/19, 3/21)
Page 374 (7.4) #7,8,21,23,24 (Lecture 3/26)
Page 382 (7.5) #3,4,7,8,12,25,35 (Lecture 3/28)
Page 390 (7.6) #3,9,21,23,27,29,30 (Lecture 3/30 and 4/2)
Page 396 (7.7) #5,7 (Lecture 4/2)
Page 404 (7.8) #1,2,8,9 (Lecture 4/4)
Page 410 (7.9) #4,10,14,29 (Lecture 4/9)
Page 271 (5.4) #1,5,7,13,28 (Lecture 4/11)
Page 500 (9.1) #1,6 (Lecture 4/16)
Page 513 (9.3) #21,27,35 (Lecture 4/16)
Page 531 (9.5) #11,12,17,31,32 (Lecture 4/18)
```

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

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/.

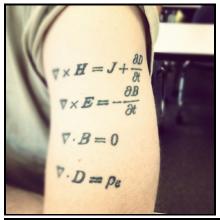
Grades

Three exams: 30% each

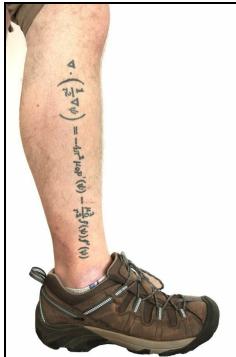
Exam 1: September 18
Exam 2: October 23
Exam 3: December 2

Homework: 10%

(not the recommended method for remembering formulas)











© 2019 **University of Florida**, Gainesville, FL 32611; (352) 392-3261. Page Updated: August 28, 2019

This page uses Google Analytics (Google Privacy Policy)