



Differential Equations

MAP 2302
 Fall 2015



Time: MWF period 9
 Place: Little 101
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Textbook: Differential Equations with boundary Value Problems
 (eighth edition) by Zill and Wright

Course grader: Xianqi Li
 Office: 431 Little Hall

Office Hours: Monday, Wednesday, Friday period 8
 (or by appointment)

Links

[homework](#)
[topics](#)
[messages](#)
[grades](#)
[cell phone policy](#)

Homework

Exercises 1.1	Page 10	Do 10
Exercises 1.2	Page 17	Do 10

Topics

Introduction

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

Mathematical Models

First Order Differential Equations

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

Numerical Methods for First Order Equations

- Euler method, Improved Euler method
- Big O notation, convergence, order of a method

Linear Second Order Equations

- Spring problems
- Constant coefficients - homogeneous
- Constant coefficients - non-homogeneous
- Non-homogeneous case
- Undetermined coefficients

Laplace transform methods

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

Systems of Equations

- Phase plane

Messages

First Exam – Friday 25 September
Second Exam – Friday 30 October
Third Exam – Monday 7 December

Free tutoring at the Teaching Center, SW Broward Hall. Check www.teachingcenter.ufl.edu for the time schedule.

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc/) 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 University honor code, [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: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>"

Information on current UF grading policies for assigning grade points may be found at: <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>.

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/>.

Grades

three exams	30% each	
homework	10%	Homework will be collected (on a Monday) two times during the semester.

(not the recommended method for remembering formulas)

