Math 256 Introduction to Differential Equations
(CRN 13774   Fall, 2017)

PART I GENERAL INFORMATION

1 Classroom and Meeting Time: Straub Hall 251; MTWF 09:00–09:50am

2 Text Book: W. Boyce and R. DiPrima, Elementary Differential Equations, 10th ed., John Wiley & Sons, Inc

3 Instructor: Peng Lu

4 Office Hours: MWF 15:00-15:50am

5 Office and Phone Number: Deady 304, 346-4727

6 Email Address: penglu@uoregon.edu

7 Web Page: http://canvas.uoregon.edu/

8 Learning Outcome: Roughly speaking, students should demonstrate understanding of ordinary differential equations (in short, ode) of first order and second order; know how to solve basic first order (including systems), second order, higher order (linear) ode's, initial value problems and first order systems. Students are also supposed to know how to apply ideas of ode in solving very basic model problems in other subjects, such as motion problems in physics, simple mortgage models etc. Important topics include

(8a) Solve first order ode's using appropriate techniques;
(8b) Be able to model problems using ode's;
(8c) Understand initial value problem and the fundamental theorem of ode's about existence and uniqueness;
(8d) Solve second order linear ode's with constant coefficients, and be able to understand the structure of general solutions of second order linear ode's;
(8e) Solve high order linear ode's with constant coefficients;
(8f) Solve second order linear ode's with non-constant coefficients by the method of power series;
(8g) Understand very basic linear algebra (e.g., matrices, eigenvalues and eigen-vectors of square matrix), and be able to solve linear system of first order ode's with constant coefficients using basic linear algebra.

9 Special accommodation: If you are a student with a documented disability, please meet with me soon to discuss your needs. If you have not already requested a notification letter from Disability Services outlining recommended accommodations, please do so soon.

10 Academic Conduct: It is not appropriate to help each other on exams, to look at other students exams, or to bring unauthorized material to exams.

PART II HOMEWORK and EXAMS

1 Homework: Homework will be **due** each **Wednesday** in class on the material of the previous week.
       Late homework will not be accepted.

2 Exams: Two in-class tests and one final exam.
       No makeup for tests except there is a documented excuse.

3 Grade: Homework: 15%; Each test: 25%; Final exam: 35%.

4 Important dates: You must bring a photo ID to the tests and final
       Test 1: Tuesday, October 17, 2017 in class;
       Test 2: Tuesday, November 14, 2017 in class;
       Final Exam: 10:15–12:15, Tuesday, December 5, 2017

PART III OUTLINE

The primary goal is to introduce ode's, to solve various simplest type of ode's, and to learn to apply ode's in very basic modelings.

The main topics are first order ode's, basic modeling problems, second order linear ode's, and system of first order linear ode's (Chapter 2, 3, & 7 and part of Chapter 4 and 5).

The first part of the course consists basically Chapter 2 and 3, where first order ode's and second order linear ode's with constant coefficients are discussed, as well as several mathematical modeling and applications using simple first order and second order ode's. In between Chapter 1 will be discussed to certain extent.

The second part consists of very simple higher order linear ode's with constant coefficients, second order linear ode's with non-constant coefficients, and system of first order (linear) ode's.