

**San Francisco State University**  
**Mathematics Department**  
**Fall 2016**  
**Math 376: Differential Equations**

**Instructor**

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Office Hours: Wed 12:00-3:00pm  
Class meetings: TuTh 14:10-15:25 in HUM 127

**Textbook**

*Elementary Differential Equations, 9<sup>th</sup> Edition*, by William Boyce and Richard DiPrima.

**Course Objectives**

The class will cover:

Chapter 2: First Order Equations;  
Chapter 3: Second Order Linear Equations;  
Chapter 5: Some of Series Solutions;  
Chapter 7: Systems of First Order Linear Equations;  
Chapter 9: Some of Nonlinear Systems and Stability.

The students will learn to:

- 1) Solve linear, separable and exact first order equations;
- 2) Solve second order equations with constant coefficients;
- 3) Apply the methods of undetermined coefficients and variation of parameters;
- 4) Construct series solutions of linear equations;
- 5) Solve first order linear systems using matrix exponentials;
- 6) Discuss the phase portrait and the stability of nonlinear systems;
- 7) Model growth, decay and vibrations;
- 8) Understand existence and uniqueness theorems.

**Tests and Grading**

Class time will be devoted to a mix of lectures and lab sessions.  
Homework will be assigned regularly. It will be collected and graded;  
There will be three quizzes (3 questions, about 40 min each);  
There will be two midterm exam (5-6 questions, 75 min each) and one final exam (120 min);

Grade will be based on 15% HW, 10% each of 3 quizzes, 15% each of 2 midterms, and 25% Final. No make-ups will be given except for compelling and well documented reasons.

### **Instructor Policy**

Students are expected and encouraged to participate and ask questions. Lecture attendance is mandatory and instructor may take roll and apply credit for good attendance. All interactions should be courteous. Student complaints, if any, must be made privately and outside class. Cell phone use is *strictly prohibited* in class. Students must ensure that no device (cell phone, pager, etc) can sound during class or they will be asked to leave immediately. Late students may be turned away. The instructor may reseat students during tests.

Students will be allowed a pocket calculator and notes (1 sheet for quizzes, 2 sheets for midterm and 3 sheets for final) during tests.