MATH 5332: *DIFFERENTIAL EQUATIONS*

Section No.: 26830
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COURSE INFORMATION

- **Prerequisites:** MATH 5331: Linear Algebra, or consent of the instructor.
- **Text:** *LINEAR ALGEBRA and DIFFERENTIAL EQUATIONS Using Matlab*

  M. Golubitsky and M. Dellnitz, Brooks/Cole Publishing Co. The MatLab program will be used in the course.
- **Syllabus Overview:** The course material will be taken from the following chapters:
  - Chapter 4: Solving Ordinary Differential Equations;
    Sections 4.1 – 4.9.
  - Chapter 6: Closed Form Solutions for Planar ODE's;
    Sections 6.1 – 6.5, 6.7.
  - Chapter 7: Qualitative Theory of Planar ODE's;
    Sections 7.1 – 7.3.
  - Chapter 11: Autonomous Planar Nonlinear Systems;
    Sections 11.1 – 11.4.
  - Chapter 15: Linear Differential Equations;
    Sections 15.1 – 15.5
  - Chapter 16: Laplace Transforms;
    Sections 16.1 – 16.4
  - Chapter 17: Additional Techniques for solving ODE's
    Sections 17.1 – 17.4

- **Assignments:** There will be 12 homework assignments, approximately one per week. The (planned) assignment schedule for the semester is indicated in the Course Calendar.

  You should work all of the assigned problems. It will be to your advantage to write out your solutions in detail, carefully and neatly.

The problems marked with an asterisk (*) are to be turned in for grading. These should be submitted either on or before the due date. You can submit your problems electronically, by fax, or in person. Accuracy is essential, neatness will be appreciated.

Solutions to all problems in each assignment will be posted approximately one week after the due date.

In addition to the assigned problems in each chapter, you are encouraged to attempt some of the unassigned problems to reinforce your understanding of the material.

- **Project:** A project, essentially an expanded exercise set focussed on a specific application, will be given at mid-semester. It will be due at the end of the semester.

- **Examinations:** There will two on-campus examinations, a mid-term exam and a comprehensive final exam. The tentative dates for these exams are:

  - Mid-term exam: Saturday, March 8
  - Final exam: Saturday, May 3

- **Assessment:** Your grade in the course will involve four components: (1) homework, (2) mid-term exam, (3) completion of the project, and (4) comprehensive final exam. The weights that will be assigned to these are as follows:

  - Homework: 25%
  - Mid-term exam: 25%
  - Project: 10%
  - Final exam: 40%