Information for students in Math 20750, Spring 2016

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Texts:  
MATLAB R2015b available for download from OIT

Syllabus: The major topics we will cover are chapters 2 and 3, first order equations and applications, chapter 6, numerical methods, chapter 8, introduction to systems of equations, chapter 9, constant coefficient linear systems, chapter 4, second order linear equations, and chapter 10, nonlinear systems, in Polking, Boggess and Arnold (in approximately that order) and the related parts of *Differential Equations with MATLAB®*.

Goals:

- Know how to solve separable, linear, and exact first order equations, constant coefficient systems and constant coefficient second order equations.  
- Understand modeling and some applications of first and second order equations and systems.  
- Use qualitative analysis to study the behavior of solutions of nonlinear equations and systems.  
- Use MATLAB to solve differential equations and systems of differential equations symbolically, numerically and graphically.  
- Understand the concepts of the course and use them to draw conclusions from the MATLAB output.  
- Be able to extend the key ideas of the course to study new problems.

Please read each section of Polking, Boggess and Arnold and of *Differential Equations with MATLAB®* before it is covered in class. To do well, you must keep up with the homework and review frequently.

MATLAB: We will use MATLAB in the course for classroom demonstrations and some assignments. We will take advantage of the symbolic capabilities as well as the numeric and graphical capabilities of MATLAB. Some quiz and exam questions will involve MATLAB.

Web Page: The web page for this course is  
http://www.nd.edu/~nancy/Math20750/info.html
On this page you will find general information about the course (including a copy of this handout), homework assignments, announcements, hints for MATLAB assignments, and MATLAB demonstrations.

**Exams:** There will be two midterms, eleven quizzes and a final exam.

- **Exam 1:** Thursday, February 18, 3:30-4:45
- **Exam 2:** Thursday, March 31, 3:30-4:45
- **Final:** 8 a.m. Thursday, May 5

Quizzes: in tutorials beginning January 21 except for the weeks of the midterms

Quizzes will be 20 points each, with the lowest quiz score dropped. Quizzes will usually cover recent homework and reading. More than half the points on exams will be problems similar to lecture examples, text examples and homework problems. You may use calculators on exams but not on quizzes.

**Homework:** The first three homework assignments are posted on the course web page. Assignment 0, your mathematical autobiography, is due January 15, Assignment 1 is due January 20 and Assignment 2 is due January 22. Future assignments will be posted by the due date of the previous assignment. Each assignment will include reading and problems. On some of the MATLAB homework, you will work with one or two other students. The homework from *Differential Equations with MATLAB®* will count for a significant part of your homework grade. Homework is due at the end of class on the due date, which will usually be one week after it is assigned. I will not accept unexcused late homework.

**Group Project:** There will be a group project.

**Grading:**

- Homework 100 points (after scaling)
- Group project 50 points
- Quizzes 100 points (after scaling)
- Midterms 200 points (100 points each)
- Final 150 points

**Absence from exams and quizzes:** If you are absent from an exam or quiz without an official excuse, you will receive a grade of zero for that examination or quiz. If you are officially excused, you will not be penalized. If you miss a test or quiz for any reason, send me an email message, call me or call the Mathematics Department as soon as possible.

**Honor Code:** Testing will be done under the Honor Code. On homework, you are allowed and encouraged to work together and discuss the problems. However, copying from ANY source, including the student solution manual, the solution manual and online solutions, is a violation of the Honor Code.