MATH 210: Differential Equations with Applications, Spring 2010
Bryn Mawr College, Department of Mathematics
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Lectures  TuTh 11:30-1:00,  Park 338

Course Webpage  http://brynmawr.edu/math/people/vandiver/Math210.htm

Textbook  

Differential Equations
Third Edition
By Blanchard, Devaney, and Hall
Brooks/Cole Cengage Learning

A brief description of the course
The traditional course in differential equations focused on the small number of differential equations for which exact solutions exist. However, the methods used by scientists today have changed dramatically due to the computer. Although we will cover some of the analytic methods discussed in a traditional course, we will also emphasize qualitative and numerical methods that have been made practical through the use of computers.

Goals of the course
• To engage effectively and efficiently in problem solving, as an individual and in cooperative situations.
• To be able to interpret, solve, simulate, understand and discuss differential equation models.
• To understand and connect concepts of mathematics with real world problems and other scientific disciplines.
• To develop an understanding of linear and non-linear systems and how feedback effects in non-linear systems can lead to unexpected behaviors.

Structure of the course
In order to learn mathematics you must be actively involved in the learning process. Reading the textbook, attending class, and working through examples will be important in succeeding in this course.
**Homework**: Homework problems will be due every Thursday. In order to fully understand the material, do not limit yourself to the problems assigned. After each class, it is highly suggested that you go over the examples done in class and practice similar problems. Late homework will not be accepted unless there is a special situation and you get my permission ahead of time. Discussion of homework problems is very much encouraged, but each student is expected to write up his/her own work.

**Lab Assignments**: The use of the computer will be an important component of the course. We will be using the software, DE Tools, which is included with the textbook.

**Exams**: There will be a midterm exam, a final exam, and a final project. The tentative schedule is as follows:

- **Midterm**: 5th week (Feb 15-19) or 6th week (Feb 22-26)
- **Final Exam**: 13th week (April 12-16) or 14th week (April 19-23)
- **Final Project**: Due during exam period

For the final project you will work with a partner and you will be required to submit a paper. The project will involve using material from the course to an applied situation.

Sections to be covered from the text will include:
- **Chapter 1**: Section 1, 2, 3, 4, 5, 6, 7, 8
- **Chapter 2**: Section 1, 2, 3, 4
- **Chapter 3**: Section 1, 2, 3, 4, 5, 6, 8
- **Chapter 4**: Section 1, 2
- **Chapter 5**: Section 1, 2
- Plus additional topics as time and interest permits.

**Grading**

Your grade will be determined as follows:

- **Homework**: 15%
- **Computer Labs**: 15%
- **Test 1**: 20%
- **Test 2**: 25%
- **Final Project**: 25%

**Special accommodations**

Students who think they may need accommodations in this course because of the impact of a learning, physical, or psychological disability are encouraged to meet with me privately early in the semester to discuss their concerns. Students should also contact Stephanie Bell, Coordinator of Access Services (610-526-7351 or sbell@brynmawr.edu), as soon as possible, to verify their eligibility for reasonable academic accommodations. Early contact will help to avoid unnecessary inconvenience and delays.

**Disclaimer**

All information provided in this document is subject to changes and elimination in the class. Changes will only be made when the instructor feels they are in the best interest of all students in class. It is the responsibility of the student to attend class and communicate with the instructor to be informed and understand these changes.