# Math 256
# Differential Equations
# 2012-13 Term 2

## Course Organization

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**Website: http://201301math256.wordpress.com/assignments/**

## Course Description
The study of analytical solutions of ordinary and partial differential equations, with emphasis on those arising in (Chemical) Engineering applications.

## Course Prerequisites
As listed on the Math Department website.

## Topic Prerequisites
Multivariable calculus including partial differentiation and integration: elementary linear algebra and matrix theory.

## Text
*Elementary Differential Equations and Boundary Value Problems* W.E. Boyce & R. C. DiPrima
**Important Note:** This book is currently in its $10^{th}$ edition and is very expensive. You ***definitely*** need a copy of one of the editions, but you don't necessarily need the latest one. Previous editions are available on the used book market – anything from the $6^{th}$ edition on will be OK.

## Course Objectives
The objectives of the course are to develop an understanding of the origin and solution of differential equations in engineering.

## Topics Covered
1. First order ODEs: Chapters 1& 2
2. Second order ODEs: Chapter 3
3. Laplace transforms: Chapter 6
4. Systems of first order ODEs Chapter 7
5. PDEs Chapter 10
6. Fourier series Chapter 10

And if time allows…
7. Boundary value and eigenvalue problems, Chapter 11, or Qualitative Theory, Chapter 9

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### 2010-11 W

**Class meetings**
2 lectures/week, 1 tutorial discussion session/week. The tutorial will be used to go over the problem sets, example problems, and midterm solutions

**Course Assignments**
There will be problem sets approximately every week. These are to be used as learning experiences and are intended to reinforce and extend the lecture and reading material. Collaboration with your classmates is allowed, (with the usual warning about making sure you are learning while collaborating!). Accordingly, the problem sets will not count heavily toward the final grade. But they are required and should be turned in on time. Late homework will be graded for half credit if received one class period late. There is no credit for homework handed in later than that. **Warning:** Not doing the homework will make it nearly impossible to pass the course.

**Tests**
There will two midterms and a final. The schedule for examinations will be announced later.

**Grading**

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|---|---|
| Homework | 13% |
| Midterms (2) | 29% each |
| Final | 29% |