

MATH 246E SECTION 0501 (Spring 2002)
**ORDINARY DIFFERENTIAL EQUATIONS
FOR SCIENTISTS AND ENGINEERS**

MTH 0409 TuTh 12:30-1:45

Instructor

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Texts

W.E. Boyce and R.C. DiPrima, *Elementary Differential Equations*, Seventh Edition, John Wiley and Sons, Inc (2001); ISBN 0-471-31998-8.

K.R. Coombes, B.R. Hunt, R.L. Lipsman, J.E. Osborn, and G.J. Stuck, *Differential Equations with Matlab*, John Wiley and Sons, Inc (2000); ISBN 0-471-32227-X.

Syllabus

- §1. Introduction: 1-1-1.2 (1 lecture).
- §2. First Order Differential Equations: 2.1-2.7 (5 lectures).
- §8. Numerical Methods: 8.1-8.3 (2 lectures).
- §3. Second Order Linear Equations: 3.1-3.8 (6 lectures).
- §6. The Laplace Transform: 6.1-6.4 (3 lectures).
- §7. Systems of First Order Linear Equations: 7.1-7.8 (6 lectures).
- §9. Nonlinear Differential Equations and Stability: 9.1-9.5 (3 lectures).

Grading Policy

EXAM 1 (20%): March 12, §§1, 2, 8, 3.1-3.3; Matlab Sets B and C.

EXAM 2 (20%): May 2, §§3, 6, 7; Matlab Set D.

FINAL (30%): Thursday May 16, §§1, 2, 3, 6, 7, 8, 9.

QUIZZES (10%): There will be a 10/15 min quiz about every two weeks, unless stated otherwise, which will cover the material developed in the previous three or four classes. Quizzes will be (a slight modification of) homework problems.

MATLAB (15%): There will be four Matlab assignments (Problem Sets B, C, D, and F). Students are encouraged to work in groups of three students but must hand in an *individual* project report. These assignments are mandatory to pass this course. The Problem Set A, which familiarizes students with Matlab, will be collected on Th Feb 7 but not graded. It is the students' responsibility to read §§1-4 of the Matlab book since this elementary material will not be discussed in class but is necessary to solve Problem Set A. All students should apply for WAM or GLUE computer accounts right away.

HOMEWORK (5%): Homeworks will be assigned each class. One problem will be collected and graded per week.