

**MA 214 (Section 001) – DIFFERENTIAL EQUATIONS
SYLLABUS – SPRING 2012**

Text: *Differential Equations with Applications and Historical Notes, 2nd Ed.*
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This course is intended to be an introduction to the theory and application of differential equations. The study of such equations is important because of the frequency with which they arise in the applications of mathematics to scientific problems. It is, after all, by means of differential equations that the laws of nature which bind the earth to its orbit and govern the world around us find their most natural expression. Consequently, in the exact sciences a vast number of problems arise in which a quantity whose value is sought is known only through some relation between that quantity and one or more of its derivatives. In such cases we are presented with a differential equation which is satisfied by an unknown function, and we are faced with the problem of determining what that function actually is. Our goal is, therefore, twofold: To acquire a certain facility in

1. Expressing problems from nature in the language of differential equations;
2. Solving the resulting equations.

Final grades will be determined on the basis of three midterm examinations and a comprehensive final examination tentatively scheduled as follows:

Exam 1 (100 points)	Wednesday, February 8
Exam 2 (100 points)	Wednesday, March 7
Exam 3 (100 points)	Wednesday, April 11
Quizzes (100 points)	Weekly
Final Exam (200 points)	Tuesday, May 1 (10:30–12:30)

There will be no makeup quizzes. Your final quiz grade will be based on your best five scores, the other quizzes being dropped. If you happen to miss a quiz that is one you will drop.

Final letter grades will correspond to the following numerical averages:

A (90-100), B (80-89), C (70-79), D (60-69), E (< 60).

It is essential that you review and become familiar with the standard techniques of integration, such as integration by

- (a) parts
- (b) partial fractions
- (c) trigonometric substitutions, etc.

Note: The use of tables of integrals, calculators and/or cell phones will not be permitted during examinations.