Mathematics 212
SYLLABUS
Spring 2004

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Office Hour: To be announced or by appointment

Course Content: Mathematics 212 is a first course on ordinary differential equations.
The course includes appropriate topics involving first-order differential equations, linear
differential equations, linear systems, and series solutions.

Course Objectives: At the end of the course, the students should be able to solve
various ordinary differential equations (o.d.e.) by various methods; be familiar with and
be able to apply the main points in the general theory of o.d.e.s; and be able to investigate
some qualitative aspects of a given o.d.e. even if it cannot be solved explicitly.

Textbook:
Dennis Zill, *A First Course in Differential Equations: The Classical Fifth Edition*

Reference Books:
George Simmons, *Differential Equations with Applications and Historical Notes*, Second
Edition, 1991 (on reserve in the library)
Morris Kline, Mathematical Thought from Ancient to Modern Times, 1972 (on reserve in
the library)
Abramovitz and Stegun, *Handbook of Mathematical Functions*, 1970 (on reserve in the
library)
Vladimir I. Arnol'd, *Ordinary Differential Equations*, Third Edition, 1992

Attendance: Students are expected to attend all classes and are responsible for all
material covered in class as well as any changes made in the schedule regarding
homework, problem sets and project dates. Class attendance and consistent preparation
for class will determine the success or failure the student realizes in this course.

Written Work: Thoughts are expressed by sentences. Your written work must be in
complete sentences. Use mathematical symbols wherever appropriate; do not use a lot of
words. Pay attention to how the problems are worked out in the textbook. Your work
should be neat and legible. It is common practice to rewrite solutions once they are
found.

Homework: Homework will be assigned on a regular basis in class, but will not be
collected. It is important that you complete most of the problems assigned. Handouts
with additional problems and information will be used to supplement the textbook.

Problem sets: There will be three problem sets and a final problem set. Instructions for
each problem set will be given at the time the specific problem set is assigned. Your

textbook and your own notes may be used on some sections of the problem sets. Some sections may require that you use no notes and that you complete the segment in one sitting. Help from another person may not be sought or used on either section.

Project: A project investigating one of several special topics will be due at the end of the term. The project will consist of both a written and an oral component. The oral presentation will be given in class during the last week or so of class. Further details of the project will be given at the appropriate time in the semester.

Grading:

3 Problem Sets @ 200 points each	600
Project	200
Final Problem Set	200
Total points	1000

The following scale will be used to assign letter grades:

A:	900 – 1000	points
B:	800 – 899	points
C:	700 - 799	points
D:	600 - 699	points
F:	Below 600	points

Grades of A-, B+, B-, C+, C-, D+ may be assigned for sums of points near the above cutoffs in total points.

Schedule of Problem Sets and Project:

Problem Set I   Assigned: February 4;   Due: February 9

Problem Set II   Assigned: February 27;   Due: March 3

Problem Set III   Assigned: April 5;   Due: April 12

Final Exam   – Comprehensive Problem Set
        Assigned: April 23;   Due: April 30 by 5 p.m. (see Final Exam schedule)

Project   – Details will be announced
        March 15 - March 19:   Select Topic
        April 16:   First Draft Due in Class
        April 21 - April 23   Presentation
        April 27:   Final Version Due

HONOR CODE: THE HONOR CODE OF OXFORD COLLEGE APPLIES TO ALL WORK SUBMITTED FOR CREDIT. ALL SUCH WORK WILL BE PLEDGED TO BE YOURS AND YOURS ALONE. THIS IS THE CASE WHEN YOU PLACE YOUR NAME ON WORK SUBMITTED.

Tentative Calendar of Topics:

Topics and the dates are subject to change.

Date	Topics	
1/14	Introduction: Basic Definitions (Syllabus, Chapter 1)	
1/16 – 2/2	Chapter 2	First Order Differential Equations
2/4 – 2/11	Chapter 3	Applications of First-Order Differential Equations
2/13 – 2/25	Chapter 4	Linear Differential Equations of Higher-Order
2/27 – 3/19	Chapter 6	Differential Equations with Variable Coefficients
3/8 - 3/12	**Spring Break**	
3/22 – 4/16	Chapter 8	Systems of Linear Differential Equations
4/19 -	To be announced	