Math 212 – Differential Equations

Spring 2009

Instructor: Dr. Kevin D. Yeomans **Office:** Pierce 120A

Office Hours: Will be posted on Blackboard.

Course Content: First and second-order ordinary differential equations, systems of ordinary differential equations, power series solutions, applications.

Course Objectives: Primary emphasis will be placed on developing techniques for the solution of differential equations. Some time will be spent on theory and applications.

Textbook: *A First Course in Differential Equations with Modeling Applications* by Dennis G. Zill, 9th Edition.

Attendance: Be present and on time!

Problem Sets: Due at the BEGINNING of class on the date indicated on the assignments. Homework problems from each section that we cover in the text will be provided during class time. The problem sets will consist primarily of these assigned homework problems. Additionally, I may add additional questions from other sources. **You are allowed to receive help from anyone/anything to complete these assignments.** This means that others are allowed to explain concepts/techniques to you, and you can compare/verify your work with other students. However, you must be actively engaged in the process of completing the assigned problems. Simply copying the work of another student and submitting it as your own will result in zero credit. **All work is expected to be professionally submitted!**

Tests: Will include both in-class and take home portions. Specific directions will be provided prior to the exam being given. The Oxford Honor Code applies to all tests and is **individual effort** on all portions.

Grades: Determined by your performance in the following areas:

Problem Sets	20%
Tests	60%
Final Exam	20%
Total	100%

Grades may include plus/minus marks. Maximum grade lines are 90%, 80%, 70%, and 60% for an A, B, C, and D respectively.

Final Exam: Comprehensive with no exemptions.

Expectations: They're high! I expect that you will read the text (several times) and attempt all the assigned homework (and more). Written responses to questions should be **grammatically correct**! I welcome your comments, criticisms, and suggestions. Please feel free to stop by my office or e-mail me with any concerns or questions that you may have.

Date	Reading	Topic
Jan 15	1.1 1.2	Definitions and Terminology Initial-Value Problems
Jan 20	1.3 2.1	DE's as Mathematical Models Solution Curves
Jan 22	2.2	Separable Variables
Jan 27	2.3	Linear Equations
Jan 29	2.4	Exact Equations
Feb 3	2.5	Solutions by Substitutions
Feb 5	2.6	A Numerical Solution
Feb 10		**Test #1**
Feb 12	3.1	Linear Models
Feb 17	3.2	Nonlinear Models
Feb 19	3.3	Modeling with Systems of DEs
Feb 24	4.1	Theory of Linear DEs
Feb 26	4.2	Reduction of Order
Mar 3	4.3	Homogeneous Linear Equations
Mar 5	4.4	Undetermined Coefficients
Mar 17	4.6	Variation of Parameters
Mar 19	4.7	Cauchy-Euler Equation
Mar 24		**Test #2**
Mar 26	5.1	Linear Models: IVPs
Mar 31	6.1	Series Solutions - Ordinary Points
Apr 2	6.2	Series Solutions - Singular Points
Apr 7	6.2	Series Solutions - Singular Points
Apr 9		Appendix II
Apr 14	8.1	Theory of Linear Systems
Apr 16	8.2	Homogeneous Linear Systems
Apr 21	8.2	Homogeneous Linear Systems
Apr 23		**Test #3**
Apr 28		Course Review & Evaluation