MATH 3303
Ordinary Differential Equations

Spring 2008

Instructor: Dr. Scott Gordon, 324 Boyd.

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Time and Location: TR 2:00–3:15, 303 Boyd.

Office Hours:

M	10:00–1:00 (10:00–12:00 in 205)
TR	11:00–12:30, 3:30–5:30

If you would like to see me but cannot come during one of these times, please call first or make an appointment.

Textbook: *Differential Equations with Boundary Value Problems (Sixth Edition)* by Dennis Zill and Michael Cullen.

Course Description: Types of equations: separable, exact, linear, nonlinear, linear systems. Methods of solution: separation of variables, characteristic equations, initial value problems, integrating factors, methods of undetermined coefficients and variation of parameters, power series solutions, eigenvalues and eigenvectors for linear systems. Modeling: spring/mass systems, predator-prey models, chemical reactions. Numerical methods: Euler, RK4.

Attendance Policy: If you have two or fewer unexcused absences during the semester, your lowest test score and lowest quiz score will be dropped. In order to have an absence excused, you must have an acceptable reason and contact me within two days of the absence.

Homework: I will assign homework exercises after each section. These problems will not be graded, but you may be quizzed on them. I will allow some time during class to discuss the problems and I encourage you to use my office hours if you have any questions about them.

Tests: There will be four 1-hour tests worth 80 points each. (See schedule below for dates.)

Quizzes: There will be ten 20-minute quizzes worth 20 points each. (See schedule below for dates.) Quiz questions will be taken *directly* from assigned homework.

Rescheduling tests and quizzes: If you have a valid reason for missing a test or quiz, you may be allowed to reschedule, but you must make arrangements with me *in advance*.

Final: There will be a *cumulative* final exam worth 200 points on 5/6, 2:00–4:00.

Grading: Your numerical grade will be your total points (on quizzes, tests, and the final) as a percentage of the total number of possible points. Your letter grade will be determined according the following grading scale: A: 88–100, B: 76–87, C: 64–75, D: 52–63, F: 0–51.

Withdrawal: March 3 is the last day to withdraw from the course with a grade of W.

Testing Schedule

1/17	Quiz 1
1/24	Quiz 2
1/31	Test 1
2/7	Quiz 3
2/14	Quiz 4

2/21	Test 2
2/28	Quiz 5
3/6	Quiz 6
3/13	Test 3
3/27	Quiz 7

4/3	Quiz 8
4/10	Test 4
4/17	Quiz 9
4/24	Quiz 10
5/6	Final Exam

Honor Code Violations: *Any student who violates the University of West Georgia Honor Code (as stated in the Student Handbook) will receive an F for the course.* The incident will also be reported to the Vice President's Office and become part of the students's record at UWG.

Learning Outcomes: The student will be able to:

1. Classify differential equations (order, linearity, etc.).
2. Solve first order equations using separation of variables.
3. Solve first order linear equations using an integrating factor.
4. Solve initial value problems.
5. Solve homogeneous, constant coefficient equations using the characteristic equation.
6. Solve inhomogeneous equations using variation of parameters and the method of undetermined coefficients.
7. Find power series solutions of a linear differential equation.
8. Use Euler's method and RK4 method to numerically approximate the solution of a differential equation.
9. Solve a system of linear, constant coefficient equations using the eigenvectors and eigenvalues of the coefficient matrix.
10. Use differential equations to model spring/mass systems, predator-prey models, and chemical reactions.