

Course Syllabus

459: MATH 277 01
Ordinary Differential Equations
Dr. Goutziers
Spring 2001

Room: MWF IRC 120AB
Time: MWF 3:00 - 3:50 p.m.
Office: Fitzelle Hall 230
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Department Office: (607) 436-3708
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Web Site: <http://www.oneonta.edu/~GoutziCJ>
Office Hours: M 9:00 a.m. W 12:00 p.m.
R 3:00 p.m. F 4:00 p.m.
Textbook: *Title:* Differential Equations; *Edition:* First; *Authors:* Paul Blanchard, Robert L. Devaney, Glen R. Hall; *Publisher:* Brooks Cole; *Date:* 1998
Symbolic Software: MapleV, Release 5.1

College Catalog Description:

The course offers an overview of qualitative, quantitative, and numerical techniques for solving ordinary differential equations, with an emphasis on mathematical modeling. Topics include separation of variables, slope fields, the phase line and equilibrium solutions, bifurcations, linear systems and phase plane analysis, the harmonic oscillator - forcing and resonance, Laplace transforms. *Prerequisite:* 8 s.h. calculus. (LA)

Course Goals and Objectives:

Math 277 provides a working knowledge of ordinary differential equations. The goal of the course is to familiarize the student with the qualitative, numeric and analytic techniques, required to obtain an understanding of the solutions. The objective is to engage the students through collaboration in small groups on the solution of problems designed to illustrate the material. A computer algebra system will be used to support the computational processes involved.

To achieve these goals, students will, upon completion of homework assignments, quizzes, and exams:

1. use a problem-solving approach to investigate and understand the mathematical content;
2. demonstrate an understanding of the principles and techniques of applying mathematics to other disciplines and to real world problems;
3. understand and apply numerical computations and extend them to algebraic expressions;
4. use mathematical modeling to solve problems from fields such as the natural sciences, social sciences, business, and engineering;
5. use computer software to explore and solve problems involving differential equations.

Course content:

Separation of variables; Slope fields; Equilibrium solutions; First order systems; Euler's method; Eigenvalues; Resonance; Linearization and equilibrium point analysis; Laplace transforms.

Methods of Evaluation and Grading Policies:

There will be three tests and approximately four quizzes during the course of the semester. Tests and quizzes will be announced on my Web site at least four days in advance. A comprehensive final exam is scheduled for Wednesday May 16, 11:00am - 1:30pm in the IRC 120AB. Homework will be assigned daily and is due at the beginning of the next class meeting. Homework and quizzes may be completed by groups of at most three students; tests and final exams are an individual responsibility.

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All submitted homework should include a coversheet indicating the course, the date, the assignment number and the students involved. Homework assignments, including quiz and test announcements, and coversheets are published on my Web site and updated daily. Homework grades depend on the percentage of assignments submitted.

00 - 50%	no homework credit
51 - 80%	half homework credit
81 - 100%	full homework credit

Course grades are computed according to the following:

Tests:	40%	90 - 100 A	77 - 80 B-	64 - 67 D+
Quizzes:	20%	87 - 90 A-	74 - 77 C+	60 - 64 D
Final Exam:	20%	84 - 87 B+	70 - 74 C	57 - 60 D-
Homework:	20%	80 - 84 B	67 - 60 C-	0 - 57 E

Attendance Policy:

It is the student's obligation to take the tests and the final exam at the scheduled times and allow for on time submitting of homework assignments.

Make-up Test and Late Assignment Policy:

Make-ups will not be given. If a student misses a test, her/his grade for that test will be considered equal to her/his grade on the final exam. Late homework cannot be accepted.