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M 311.02: Ordinary Differential Equations and Systems

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The University of
Montana

Department of Mathematical Sciences
Fall 2013, Math 311
Ordinary Differential Equations

Instructor: Professor Emily Stone **E-mail Address:** stone@mso.umt.edu
Office: MATH 004B **Office Phone:** 243-5365
Office Hours: M 2-3, T 10-11, W 10-11, F 12-1

Course Description: In this course we will cover analytic solution techniques for first order differential equations (ODEs) and second order linear differential equations. We will also study numerical methods for constructing approximate solutions to ODEs, and qualitative methods for studying nonlinear systems, namely phase plane analysis. Modeling simple systems governed by ODEs will be introduced, along with the general analysis of linear systems of ODEs.

Texts: • *Elementary Differential Equations*
Boyce and DiPrima, 9th Ed., J. Wiley

Prerequisite: Math 251/M273

Important Dates:

Sept. 2:	Labor Day Holiday - no classes
Sept. 16:	Last day to drop/add via Cyberbear
Oct. 28:	Last day to drop classes/change sections with form
Nov. 5:	Election Day Holiday - no classes
Nov. 11:	Veteran's Day Holiday - no classes
Nov. 28-30:	Thanksgiving Day Holiday - no classes
Dec. 6:	Last Day for Drop Petitions

Exams: (tentative)

Sept. 27 (Friday):	Exam 1
Nov. 8 (Friday):	Exam 2
Dec. 12 (Thursday):	Final Exam, 8:00–10:00 a.m.

Grading:

Homework	25% of course grade
Exams (2)	50% of course grade
Final Exam	25% of course grade

SOME COMMENTS

Homework Assignments:

The list of homework problems which will be assigned is only a minimal list. You should do the more straight forward problems on your own as a warm-up. A computer or calculator may be used to aid with the calculations in the homework. You are encouraged to work together on the assignments, but are asked to write up the solutions individually. We expect your solutions to be clearly written, with thorough explanations. It often helps if you look over your solutions before you hand them in and ask yourself if a classmate could easily understand what you have written.

Homework assignments will be due on Wednesdays by 2:00 p.m.. Homework up to 1 day late (Thursday 2:00 p.m.) will receive a 25% deduction, up to 2 days late (Friday 2:00 p.m.), a 50% deduction. Homework will not be accepted any later than 2 days past the due date. You may hand in your assignment in class, or you can place it in the homework box in the main office, MATH 111. Please have your assignments stapled or paper-clipped on 8.5 by 11 inch paper.

Readings:

In mathematics lectures, a new term is often defined at the beginning of the class period and then used repeatedly throughout the session. It is helpful to be prepared for class by reading the text ahead of time. Thus, when a new topic is introduced in class, it is *not* the first time you have seen it! The reading assignments are designed to help you make better use of class time, they are to be done *before* the material is covered in class.

Exam Information:

There will be two in-class exams and a final given on the dates listed at the bottom of the first page of this syllabus. The final exam will be cumulative with a slight emphasis on the material covered after the third test. Make-ups for an exam will not be given unless you have a valid excuse and you contact me prior to the exam.

Grading:

Grading will be done on the usual percentage scale, 90-100% A, 80-89 % B, etc.

Students with Disabilities:

Students with disabilities are welcome to discuss accommodations with me.

Academic Misconduct:

All students need to be familiar with the Student Conduct Code. You can find it in the "A to Z Index" on the UM home page. From this, please note that all students are expected to practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University.

Final Note:

Announcements made in class are considered addenda to this syllabus.