

Differential Equations: Math 308

Fall 2009, MWF 10:20–11:10 a.m. in BLOC 128

Professor: Michael Anshelevich, 326 Milner, manshel@math.tamu.edu, 845–6679 (please use email).

Webpage: www.math.tamu.edu/~manshel/m308/m308.html.

Office hours: M 1:50–2:40, TTh 11:10–12:10, or by appointment.

Textbooks: WILLIAM E. BOYCE & JAMES R. BRANNAN, “Differential Equations, An Introduction to Modern Methods and Applications”, 1st edition, Wiley, and POLKING, “Ordinary Differential Equations using MATLAB”, 3rd edition, Pearson.

Prerequisites: MATH 251 or equivalent; knowledge of computer algebra system. In other words, vector calculus, calculus of several variables, multiple differentiation and integration. Later in the course, we will have a quick review of matrix algebra.

Course outline: see the end of the handout.

Exams: We will have two in-class tests on Friday, **September 25** and Monday, **November 2**. The final exam is on Tuesday, **December 15**, 8:00–10:00 a.m. If, under *completely exceptional* circumstances, you need to miss one of the tests, a make-up exam will be given. Only University-approved excuses will be accepted, and you have to let me know preferably in advance, and no later than 2 days after the exam. The exams are closed book, closed notes, and calculators are not permitted. You should bring your ID to all tests.

Homework: weekly, due on Wednesdays in class. Assignments will involve problems from the textbook, as well as MATLAB calculations. Homework problems may appear on exams and quizzes. You are encouraged to work together, but straight copying of homework is not allowed. Late homework will not be accepted, but the lowest homework score will be dropped.

Quizzes: There will be short quizzes in class, announced in advance. The lowest score will be dropped.

	Homework, MATLAB, and quizzes	30%
Grading:	each midterm test	20%
	final exam	30%

A total score of 90% or more guarantees an A, a score of 80% or more a B, 70% or more a C, 60% or more a D.

Scholastic Dishonesty: Cheating of any form is not acceptable and it will be dealt with harshly. In particular, copying work done by others, either in-class or out of class, is an act of scholastic dishonesty and it will be prosecuted to the full extent allowed by university policy. Collaboration on assignments is permitted for this course, however each student must write up their own solutions. For more information on university policies regarding scholastic dishonesty, see the University Student Rules.

Aggie Honor Code: “An Aggie does not lie, cheat, or steal or tolerate those who do.”

Other important dates: September 4 (last day to add or drop a course), November 6 (last day for a Q-drop), November 26–27 (Thanksgiving).

Students with disabilities: Come talk to me no later than the first week of classes. “The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe that you have a disability requiring an accommodation, please contact the Department of Student Life, Services for Students with Disabilities, in Room 126 of the Koldus Building or call 845–1637.”

Attendance: According to the University Student Rules, absence for three or more class days requires a University-approved excuse and documentation.

Keys to success: Attend class (of course :) Solve *all* the homework problems, well before the exams. Spend more than seven hours per week working on the problems. Form study groups to discuss the course material and homework problems. Read ahead in the text.

Topics to be covered:

- General properties of differential equations (Chapter 1). Direction fields.
- Exact methods and formulas: first order, and second order linear, differential equations (Chapters 2, 4). Separable and linear first-order equations. Homogeneous linear equations with constant coefficients. Method of undetermined coefficients and variation of parameters.
- Mathematical models and applications (Chapters 2, 4, 7).
- Laplace transforms (Chapter 5).
- Linear systems (Chapters 3, 6). Matrix methods.

MATLAB will be used in the course for numerical computations and to illustrate the concepts.

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