

Fall 2009. MATH3354. Section 002.

Differential Equations I

Instructor: Luan Thach Hoang

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Office hours: T W Th 2:00 pm - 3:00 pm

Classroom and Time: MA 010, T Th 12:30 pm - 1:50 pm.

Course website: <http://www.math.ttu.edu/~lhoang/2009Fall-M3354/>

Updates about the course and other related announcements will be posted on this webpage.

Prerequisite: MATH 2350 and MATH 2360.

Text: *Differential Equations with Boundary-Value Problems*, 7th edition, by D.G. Zill and M.R. Cullen, published by Cengage.

Course Description: This course covers topics in ordinary differential equations: First-order differential equations; Modeling with first-order differential equations; Higher-order differential equations; Modeling with higher-order differential equations; Laplace transform; Series Solutions of Linear Equations.

Course Outline:

- Chapter 1 – (1.1, 1.2) Introduction
- Chapter 2 – (2.1-2.6) First-Order Differential Equations
- Chapter 3 – (3.1-3.2) Modeling with First-Order Differential Equations
- Chapter 4 – (4.1-4.4, 3.6, 4.7) Higher-Order Differential Equations
- Chapter 5 – (5.1) Modeling with Higher-Order Differential Equations
- Chapter 6 – (6.1, 6.3) Series Solutions of Linear Equations
- Chapter 7 – (7.1-7.5) Laplace Transforms

Expected Learning Outcomes: Students will obtain a thorough knowledge of solution techniques for first-order and for second- and higher-order constant coefficient linear homogenous and nonhomogeneous initial value problems using standard methods of undetermined coefficients and variation of parameters. In addition, the students will acquire a general understanding of how to apply the Laplace transform in solving initial value problems and convolution integral equations. Students will gain an appreciation for some of the applications of ordinary differential equations in biology and engineering.

Methods of Assessment of Learning Outcomes: Assessment of the learning outcomes will be achieved through homework assignments, three midterm exams, and a final exam.

Grading policy: Homework will be assigned weekly and will count for 25% of the grade. The lowest homework score will be dropped. There will be three midterm exams in class, each will count for 15% of the grade. The final exam will count for 30% of the grade. All in-class exams are closed-book. No make-up exams are given unless legitimate documents for excuses are presented to the instructor at least a week in advance.

Grading Scale: A: 90%-100%, B: 80%-89%, C: 70%-79%, D: 60%-69%, F: below 60%

Homework assignments: Online homework will be assigned through Webwork. Students will receive the instructor's message for login information. Due dates are indicated on each assignment. Students should spend very first week to get familiar with the system.

Calculators: Only scientific calculators are allowed in exams. These calculators can calculate the values of the standard algebraic, trigonometric, exponential and logarithmic functions. Graphing calculators and calculators that can do symbolic manipulations are not allowed.

Examination Schedule:

- Midterm 1: Tuesday, September 22.
- Midterm 2: Thursday, October 22.
- Midterm 3: Thursday, November 19.
- FINAL EXAM: Saturday, December 12, 1:30 p.m. – 4:00 p.m. Room MA 010.

Critical Dates:

- Aug. 27: Classes begin.
- Sep. 7: Labor Day. Holiday.
- Oct. 12-13: Student Holiday; does not apply to School of Law.
- Nov. 2: Last day to drop a course.
- Nov. 25-29: Thanksgiving Holiday.
- Dec. 9: Last day of classes.

Academic Misconduct: Academic dishonesty is intolerable and will be punished to the full extent allowed by the University policy.

Civility in the Classroom: Students are expected to assist in maintaining a classroom environment that is conducive to learning. In order to assure that all students have the opportunity to gain from time spent in class, unless otherwise approved by the instructor, students are prohibited from engaging in any other form of distraction. Inappropriate behavior in the classroom shall result, minimally, in a request to leave class.

Students with Disabilities: Any student who because of a disability may require special arrangements in order to meet course requirements should contact the instructor as soon as possible.

Advice: Come to class regularly, work on homework problems. Ask questions in class and get help from the instructor during the office hours. Master the material quickly and *do not* wait too late until the midterms or the final exam. Students are encouraged to give feedbacks to the instructor during the semester using the form posted online.

NOTE: When needed, the instructor will communicate with the students using their TTU email addresses. At the beginning of the semester, the instructor will send out a message to confirm the students' email addresses and to inform about Webwork. If a student does not receive any messages by the time of the second class (Tuesday, Sep. 1), he/she must contact the instructor immediately.