

Fall 2018. MATH3354. Section 002.

Differential Equations I

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Office hours: TR 12:30 pm - 1:30 pm, W: 2:30 pm - 3:30 pm.

Classroom and Time: MA 016, TR 11:00 am - 12:20 pm.

Course website: <http://www.math.ttu.edu/~lhoang/2018Fall-M3354/>

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

Prerequisite: MATH 2350 or 2450 and MATH 2360.

Text: *Differential Equations with Boundary-Value Problems*, 9th 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, 4.6, 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.

Webwork Link: <http://webwork.math.ttu.edu/webwork2/f18lhoangm3354s002>

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: Thursday, September 20, 2018.
- Midterm 2: Thursday, October 18, 2018.
- Midterm 3: Thursday, November 15, 2018.
- FINAL EXAM: Friday, December 7, 2018, 7:30 a.m. - 10:00 a.m., Room MA 016.

Critical Dates:

- Aug. 27: Classes begin.
- Aug. 30: Last day for student-initiated addition of a course on MyTech.
- Sep. 3: Labor Day. University Holiday.
- Sep. 12: Last day for student-initiated drop on MyTech without academic penalty.
- Oct. 29: Last day for student-initiated drop on MyTech with academic penalty.
- Nov. 21 - 25: Thanksgiving holiday. No classes.
- Nov. 30 - Dec. 6: No exams.
- Dec. 5: Last day of classes.

TTU OPs:

ADA accommodations (TTU Operating Policy 34.22). Any student who, because of a disability, may require some special arrangements in order to meet course requirements should contact the instructor as soon as possible to make any necessary arrangements. Students should present appropriate verification from Student Disability Services, during the instructor's office hours. Please note instructors are not allowed to provide classroom accommodations to student until appropriate verification from Student Disability Services has been provided. For additional information, you may contact the Student Disability Services office at 335 West Hall or (806) 742-2405.

Absence for observance of a religious holy day (TTU Operating Policy 34.19). 1. "Religious holy day" means a holy day observed by a religion whose places of worship are exempt from property taxation under Texas Tax Code 11.20. 2. A student who intends to observe a religious holy day should make that intention known to the instructor prior to the absence. A student who is absent from classes for the observance of a religious holy day shall be allowed to take an examination or complete an assignment scheduled for that day

within a reasonable time after the absence. 3. A student who is excused under Section 2 may not be penalized for the absence; however, the instructor may respond appropriately if the student fails to complete the assignment satisfactorily.

Academic Honesty (TTU Operating Policy 34.12). It is the aim of the faculty of Texas Tech University to foster a spirit of complete honesty and high standard of integrity. The attempt of students to present as their own any work not honestly performed is regarded by the faculty and administration as a most serious offense and renders the offenders liable to serious consequences, possibly suspension. "Scholastic dishonesty" includes, but is not limited to, cheating, plagiarism, collusion, falsifying academic records, misrepresenting facts, and any act designed to give unfair academic advantage to the student (such as, but not limited to, submission of essentially the same written assignment for two courses without the prior permission of the instructor) or the attempt to commit such an act.

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.

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.

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 two messages, one to confirm the students' email addresses, and another to inform about Webwork. If a student does not receive these messages by the time of the second class, he/she must contact the instructor immediately.