

Spring 2009. MATH3350. Section 010.

Higher Mathematics for Engineers and Scientists I

Instructor: Luan Thach Hoang

Office: MA 205. Phone: (806) 742-2580 Ext 232. Fax: (806) 742-1112

Email address: luan.hoang@ttu.edu

Homepage: <http://www.math.ttu.edu/~lhoang/>

Office hours: M Th 11:00 am - 12:30 pm

Classroom and Time: MA 108, T Th 9:30 am - 10:50 am.

Course website: <http://www.math.ttu.edu/~lhoang/2009Spr-M3350/>

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

Prerequisite: MATH 2350 or equivalent course.

Text: *Fundamentals of Differential Equations*, by Nagle, Saff, and Snider, 7th edition

Course Description: This course is intended to present foundations of higher mathematics to scientists. It focuses on the basic theory of ordinary differential equations and their applications in other sciences.

Course Outline:

- Chapter 1 - Introduction: Section 1.2
- Chapter 2 - First-Order Differential Equations: Sections 2.2-2.6
- Chapter 3 - Mathematical Models: Sections 3.2-3.5 (select topics)
- Chapter 4 - Linear Second-Order Equations: Sections 4.1-4.6
- Chapter 6 - Theory of Higher-Order Linear Differential Equations: Sections 6.1-6.4
- Chapter 7 - Laplace Transforms: Sections 7.1-7.8
- Chapter 10 - Fourier Series: Sections 10.3-10.4

Expected Learning Outcomes: The students will understand the concept of differential equations, their solutions, and applications to physical sciences and engineering. In particular the students will learn to

1. recognize a differential equation and its solution,
2. compute solutions of first order differential equations,
3. compute solutions of linear differential equations,
4. use Laplace transforms,
5. recognize Fourier series,
6. find numerical solutions.

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: Thursday, Feb. 5.
- Midterm 2: Thursday, Mar. 5.
- Midterm 3: Thursday, Apr. 9.
- FINAL EXAM: Thursday, April 30, 7:30 am - 10:00 am, Room: MA 108.

Critical Dates:

- Jan. 7: Classes begin.
- Jan. 19: Martin Luther King Jr. Day. Holiday.
- Mar. 11: Last day to drop a course.
- Mar. 14-22: Spring break.
- Apr. 13: No classes.
- Apr. 28: 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 two special email messages. One is to confirm the students' email addresses, the other one is about Webwork. If a student does not receive those messages by the time of the second class (Tuesday, Jan. 13), he/she must contact the instructor immediately.