

**Fall 2020. MATH3351. Section 001.**

**Higher Mathematics for Engineers and Scientists II**

**Instructor:** Luan Thach Hoang

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All time reference is Lubbock (Central) time.

**Classroom and Time:** This is an online course. There are NO official classroom and meetings. Students are responsible for learning the material, only contact the instructor during virtual office hours or by email.

**Office hours:** TR 11:00 a.m. - 12:50 p.m., online. Information will be sent to students.

**Course website:** <http://www.math.ttu.edu/~lhoang/2020Fall-M3351/>

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

**Prerequisite:** MATH 3350 or MATH 3354.

**Text:** *Advanced Engineering Mathematics*, by Dennis G. Zill and Warren S. Wright, 6th Revised Edition with online access, published by Jones & Bartlett (2018)

**Course Description:** This course covers topics in linear algebra, systems of ordinary differential equations, Fourier series and solution of boundary value problems for partial differential equations. Topics to be covered include: Linear Algebra and Matrix Theory; Systems of linear first-order differential equations; Orthogonal Functions and Fourier Series; Boundary-Value Problems in Rectangular Coordinates; Boundary-Value Problems in Other Coordinate Systems.

**Course Outline:**

- Chapter 8 – (8.1-8.5, 8.8) Matrices
- Chapter 10 – (10.1, 10.2) Systems of Linear Differential Equations
- Chapter 12 – (12.1-12.4) Orthogonal Functions and Fourier Series
- Chapter 13 – (13.1-13.6, 13.8) Boundary-Value Problems Rectangular Coordinates
- Chapter 14 – (14.1-14.3) Boundary-Value Problems in Other Coordinate Systems
- Chapter 15 – (Selected Topics) Integral Transforms

**Expected Learning Outcomes:** The students will extend their knowledge of differential equations and their solutions acquired in MATH 3350 by developing new methods to solve differential equations and by studying the concept of partial differential equations and their solutions and applications. In particular, the students learn:

- about the fundamental properties of linear systems, and their solutions
- how to solve partial differential equations by separation of variables or Fourier series

- to apply these techniques to the three classical equations: the heat, wave, and Laplace's equation
- many examples of boundary value problems that appear in physical sciences 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. **However, your overall grade in the Homework at the end of the semester must be at least 50%, otherwise you automatically fail the course.** 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/f20lhoangm3351s001>

#### **Examination Schedule:**

- Midterm 1: Friday, September 18, 11:00 am - 12:30 pm, Online on Webwork.
- Midterm 2: Friday, October 16, 11:00 am - 12:30 pm, Online on Webwork.
- Midterm 3: Friday, November 13, 11:00 am - 12:30 pm, Online on Webwork.
- FINAL EXAM: Monday, December 7, 1:30 pm - 4:00 pm Online on Webwork.

#### **Critical Dates:**

- Aug. 24: Classes begin.
- Aug. 27: Last day for student-initiated addition of a course on MyTech.
- Sep. 7: Labor Day. University Holiday.
- Sep. 9: Last day for student-initiated drop on MyTech without academic penalty (drop does not count against drop limit).
- Sep. 10: Student-initiated drop made on or after this date counts against drop limit.
- Nov. 24: Last day for student-initiated drop on MyTech with academic penalty (counts against drop limit).
- Nov. 25 - 29: Thanksgiving holiday. No classes.
- Nov. 24 - Dec. 2: No exams.
- Dec. 2: 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.

**Illness-Based Absence Policy:** If at any time during this semester you feel ill, in the interest of your own health and safety as well as the health and safety of your instructors and classmates, you are encouraged not to attend face-to-face class meetings or events. Please review the steps outlined below that you should follow to ensure your absence for illness will be excused. These steps also apply to not participating in synchronous online class meetings if you feel too ill to do so and missing specified assignment due dates in asynchronous online classes because of illness.

**1. If you are ill and think the symptoms might be COVID-19-related:**

- a. Call Student Health Services at 806.743.2848 or your health care provider.
- b. Self-report as soon as possible using the Dean of Students COVID-19 webpage. This website has specific directions about how to upload documentation from a medical provider and what will happen if your illness renders you unable to participate in classes for more than one week.
- c. If your illness is determined to be COVID-19-related, all remaining documentation and communication will be handled through the Office of the Dean of Students, including notification of your instructors of the period of time you may be absent from and may return to classes.
- d. If your illness is determined not to be COVID-19-related, please follow steps 2.a-d below.

**2. If you are ill and can attribute your symptoms to something other than COVID-19:**

- a. If your illness renders you unable to attend face-to-face classes, participate in synchronous online classes, or miss specified assignment due dates in asynchronous online classes, you are encouraged to visit with either Student Health Services at 806.743.2848 or your health care provider. Note that Student Health Services and your own and other health care providers may arrange virtual visits.
- b. During the health provider visit, request a "return to school" note.
- c. E-mail the instructor a picture of that note.
- d. Return to class by the next class period after the date indicated on your note.

Following the steps outlined above helps to keep your instructors informed about your absences and ensures your absence or missing an assignment due date because of illness will be marked excused. You will still be responsible to complete within a week of returning to class any assignments, quizzes, or exams you miss because of illness.

*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 those messages by Tuesday, August 25, 2020, he/she must contact the instructor immediately.

**Handouts:** See updates on the course's webpage. More will be communicated with the students.

- [Syllabus](#)

**Links:** See updates on the course's webpage. More will be communicated with the students.

- [WeBWork](#)