

# MATH 3351: Higher Mathematics for Engineers and Scientists II.

## Section 001, Fall 2025.

- ◇ **Instructor:** Ignacio Tomas
- ◇ **Office:** 221, Math Building
- ◇ **E-mail:** igtomas@ttu.edu
- ◇ **Webpage:** <https://www.math.ttu.edu/~igtomas/Teaching>
- ◇ **Lectures time and place:** Monday, Wednesday and Fridays from MWF 10:00-10:50 in classroom MATH 014.
- ◇ **Homework:** even though I will make announcements in class, I strongly encourage you to check the link

<https://webwork.math.ttu.edu/webwork2/fal25igtomasm3351s001>

on a weekly basis. Important points:

- Do NOT attempt to solve the homework problems mentally, by guessing, or trial and error: such solving strategies will not serve you well as preparation for the exams. Homework is about learning and understanding the steps required to solve a problem rather than simply delivering an answer. I strongly suggest you to solve each and every problem on paper. This implies working the details of each problem.
- Please do not solve the homework problem using ChatGPT or related AI assistants. To the best of my knowledge: AI will not help you to assimilate the material the material any better than using traditional means (pencil and paper).

Always remember that problem solving is the foundation required to perform well in your exams.

◇ **Office hours.** Monday 3:00pm to 5:00pm. If that time does not fit your schedule, please send me an e-mail so we can better coordinate. I can accommodate one-to-one meetings: M-W-F from 11:00am-1:00pm and 3:00pm-5:00pm.

◇ **Textbook:** The official textbook is “Elementary Differential Equations & Boundary Value Problems”, 12th Edition, Boyce, DiPrima, and Meade, Wiley and Sons, Inc. ISBN: 978-1-119-77768-7 (2022).”.

However, I will prepare my lectures using “Zill, Advanced Engineering Mathematics, 6th edition”. I will be using the 6th edition of Zill’s for teaching, but you should be just fine if you use 5th edition. The official textbook is a good choice as a long term reference that you might want to add to your bookshelf. But if you want to follow the material I use in my lectures, then, the book of Zill will be your best choice.

◇ **Contents of the class.** From the Math Department manual: “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.”

More precisely we will cover the following chapters from Zill's book:

- Chapters 8.1-8.5 and 8.8 on Matrices.
- Chapters 10.1 and 10.2 on Systems of Linear Differential Equations.
- Chapters 12.1-12.4 Orthogonal Functions and Fourier Series (Review table of solutions for linear DEs p. 674)
- Chapters 13.1-13.6, and 13.8 on Boundary-Value Problems Rectangular Coordinates.
- Chapters 14.1-14.3 Boundary-Value Problems in Other Coordinate Systems
- Chapter 15 (Optional): Integral Transforms.

♦ **Exam dates (tentative):**

- First exam: Friday Sept 26th, 10:00-10:50 in classroom MATH 014 (the regular lecture room).
- Second exam: Monday October 27, 10:00-10:50 in classroom MATH 014.
- Third exam: Friday November 21, 10:00-10:50 in classroom MATH 014.
- Final exam: Tuesday, December 9, 10:30 a.m. to 1:00 p.m. in MATH 014.

♦ **Important dates.** You can find the (full) official TTU's academic calendar at

[https://www.depts.ttu.edu/officialpublications/calendar/25-26\\_onepage\\_calendar.pdf](https://www.depts.ttu.edu/officialpublications/calendar/25-26_onepage_calendar.pdf)

Some important TTU dates I extracted from the official calendar:

- Classes Begin: Aug. 25 (Monday)
- Labor day: Sep. 1 (Monday)
- Thanksgiving Nov. 26-30 (Wednesday-Sunday)
- No Exams Except Makeup or Scheduled Lab Exams: Nov. 25-Dec. 4 (Tuesday-Thursday)
- Last Day of Classes: Dec. 3
- Individual Study day: Dec. 4
- Final Examinations: Dec. 5-10
- Semester Ends: Dec. 10

Note: these dates are provided for your convenience. This syllabus should not be used as your primary academic calendar reference. Always refer to the official academic calendar.

♦ **Electronic aids:** I strongly suggest not using any electronic aid such as calculators, tablets, smartwatch, etc during class time or while solving your homework. Clinging to electronic aids will in general not help you with the learning process. In the specific context of exams all electronic aids are forbidden: you are NOT allowed to use electronic calculator, cell-phone, smartwatch, tablet, or similar device.

♦ **Grade posting:** in order to comply with state regulations and preserve your right of privacy, I will NOT communicate grades by e-mail or phone. I will strictly communicate and post grades using RaiderCanvas or in person during office hours.

♦ **Course evaluation:** this class will have three exams and one final exam, it will also have weakly assigned homework. This class has no practice meetings ('practicum') and/or computational lab. But you are welcome to discuss specific problems during office hours. Attendance to class counts as part of your grade: 5% of your total semester-grade will be determined by your attendance. From

the three exams, the instructor will drop the exam with the lowest grade. More precisely, your semester-grade will be computed as follows:

- Exam with your highest grade: 25%
- Exam with your second highest grade: 25%
- Final Exam Grade (Fi): 35%
- Homework (WebWork): 10%
- Attendance: 5%

In other words: exams account for 85% of your semester grade. In principle, the letter-grade brackets are:

$$F : [0, 60) , \quad D : [60, 70) , \quad C : [70, 80) , \quad B : [80, 90) , \quad A : [90, 100].$$

These brackets might be adjusted accordingly with the level of difficulty of the class.

◇ **Texas Tech Operating Policies and Procedures.** The complete policies are available at

<http://www.depts.ttu.edu/opmanual/>

The operating policies are numerous but here are three that are particularly important:

- Academic Honesty (OP 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.
- ADA Accommodation (OP 34.22): Any student who, because of a disability, may require special arrangements in order to meet the 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 that instructors are not allowed to provide classroom accommodations to a 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.
- Religious Holy Day Observance (OP 34.19): “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. 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. A student who is excused may not be penalized for the absence; however, the instructor may respond appropriately if the student fails to complete the assignment satisfactorily.