

MATHEMATICS 4354.001
Differential Equations II
Fall 2018

Professor: Dr. Linda Allen; Office Math 104; Mathematics Office Phone: 806-742-2566

Office Hours: Monday and Wednesday, 8-9 am, 11 am-12:30 pm; Friday, 8-9 am,
or by appointment.

Class Meeting Time and Room: Monday, Wednesday, and Friday, 9-9:50 am, Math 15.

Course Website: All assignments will be posted on our website:
www.math.ttu.edu/~linallen/Math4354Fall2018.html

Prerequisite: Math 3350 or Math 3354 or equivalent course.

Textbook: *Differential Equations with Boundary-Value Problems*, 9th ed. by Dennis G. Zill.

Material Covered:

Chapter 8: Systems of Linear First-Order Differential Equations: 8.1-8.2

Chapter 10: Systems of Nonlinear First-Order Differential Equations: 10.1-10.4

Chapter 11: Fourier Series: 11.1-11.4

Chapter 12: Boundary-Value Problems in Rectangular Coordinates: 12.1-12.6

Chapter 13: Boundary-Value Problems in Other Coordinate Systems: 13.1-13.2

Chapter 14: Integral Transforms: 14.1-14.4

Expected Learning Outcomes: Students learn the basic theory of linear systems of ordinary differential equations and methods to solve initial-value problems. Students become familiar with the qualitative solution behavior of autonomous systems of differential equations in the plane. In addition, students learn properties about orthogonal series and Fourier series and how to apply these series in the solution of boundary-value problems of partial differential equations, specifically, heat, wave and Laplace's equations in rectangular coordinates on finite domains. Finally, students learn about other types of series and integral transforms that are used to solve boundary-value problems in other coordinate systems and on infinite domains.

Methods of Assessment of Learning Outcomes: Continuous assessment of the progress of the course occurs through ongoing communication between the instructor and the students. Students are encouraged to ask questions during class and to seek the instructor's help outside of class when needed. Formal assessment occurs through exams, written homework assignments, and WeBWorK assignments.

Exams: Four exams will be given. Exam #4 is a comprehensive final, given during final exam week. Exams #1, #2, #3 each count as 18% of your course grade and Exam #4 counts 16%. However, if the score on the comprehensive final Exam #4 is higher than any one of the scores on Exams #1, #2, or #3, it will **replace the lowest** of the three exam scores and it will count as 34% of your course grade. Calculators are not allowed on any exams. No make-up of exams will be given, except for documented sickness or participation in a university-sponsored event.

WeBWorK: WeBWorK is an online web-based homework system. Approximately 9-12 WeBWorK assignments will be given during the semester. No late or make-up WeBWorK assignments will be accepted.

Written Homework Assignments: Written homework assignments involve computational methods. No late or make-up written homework assignments will be accepted.

Attendance: Class attendance is important. The lectures explain and complement the material provided in the text. A thorough understanding of the material is significantly improved by diligent class attendance. If you need to leave a class early, please tell your instructor before the class starts. You are responsible for all material covered in class.

Course Grade: The assessment of student progress will include:

- (1) Four exams (70%)
- (2) WeBWorK (20%)
- (3) Written Homework Assignments (10%).

| Exam | Date |
|------------------------------|--|
| Exam #1 | Friday, September 28 |
| Exam #2 | Friday, October 26 |
| Exam #3 | Wednesday, November 28 |
| Comprehensive Final, Exam #4 | Monday, December 10 (7:30 a.m.–10:00 a.m.) |

Important Dates and Facts:

1. Monday, September 3, Labor Day Holiday
2. Wednesday, September 12, Last day of student-initiated drop **without** academic penalty
3. Monday, October 29, Last day of student-initiated drop **with** academic penalty
4. Wednesday-Friday, November 21-23, Thanksgiving Holiday
5. Wednesday, December 6, Last day of classes
6. **Civility in the Classroom:** Texas Tech University is a community of faculty, students, and staff that enjoys an expectation of cooperation, professionalism, and civility during the conduct of all forms of university business, including the conduct of student–student and student–faculty interactions in and out of the classroom. The classroom is a setting in which an exchange of ideas and creative thinking are encouraged and where intellectual growth and development are fostered. Students who disrupt this classroom mission by rude, sarcastic, threatening, abusive or obscene language and/or behavior are subject to appropriate sanctions according to university policy.
7. **Academic Integrity:** Academic integrity is taking responsibility for ones own class and/or course work, being individually accountable, and demonstrating intellectual honesty and ethical behavior. Academic integrity is a personal choice to abide by the standards of intellectual honesty and responsibility. Because education is a shared effort to achieve learning through the exchange of ideas, students, faculty, and staff have the collective responsibility to build mutual trust and respect. Ethical behavior and independent thought are essential for the highest level of academic achievement, which then must be measured. Academic achievement includes scholarship, teaching, and learning, all of which are shared endeavors. Grades are a device used to quantify the successful accumulation of knowledge through learning. Adhering to the standards of academic integrity ensures grades are earned honestly. Academic integrity is the foundation upon which students, faculty, and staff build their educational and professional careers. [Texas Tech University Quality Enhancement Plan, Academic Integrity Task Force, 2010]
8. **Observance of Religious Holy Day:** “Religious holy day” means a holy day observed by a religion whose places of worship are exempt from property taxation under Texas Tax Code Section 11.20. A student who intends to observe a religious holy day should make that intention known in writing 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.
9. **Accommodation of Students with Disabilities:** 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 instructors office hours. Please note: instructors are not allowed to provide classroom accommodations to a student until appropriate verification from Student Disability Services has been provided. For additional information, please contact Student Disability Services in West Hall or call 806-742-2405.