

COURSE SYLLABUS

Professor: Dr. Raegan Higgins

Office: MA 219
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Phone: 742-2580 ext 273
Office Hours: TR 9:30 – 11:00am
W 1:30 – 2:30 pm (by appt)

Classroom Lecture MWF 12:00noon – 12:50pm Math 112

Prerequisite Policy: Students must have completed Math 2350 or an equivalent course.

Text: *Advanced Engineering Methods*, 3rd Ed by D. G. Zill and M. R. Cullen, ISBN: 0-736-74591-X.

Material to be Covered: The information below serves a *tentative* outline for the material to be covered.

Chapter 1	Introduction	Sections 1 – 2
Chapter 2	First-Order Differential Equations	Sections 1 – 8
Chapter 3	Higher-Order Differential Equations	Sections 1 – 6, 8
Chapter 5	Series Solutions of Linear Equations	Sections 1, 3
Chapter 4	Laplace Transforms	Sections 1 – 5

Expected Student 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 be expected to:

- solve scalar first-order ordinary differential equations (ODEs) by **(A)** techniques based on integration for (i)separable, (ii)linear, and (iii) exact ODEs and **(B)** methods additionally requiring integrating factors and substitutions for treating (iv) nonexact, (v) homogeneous, and (vi) nonlinear Bernoulli equations;
- solve higher-order ODEs by (i) variation of parameters, (ii) undetermined coefficients, (iii) methods based on power series, and (vi) Laplace transforms;
- and understand the basic theory underpinning the aforementioned methods, e.g., the convergence theory of power series solutions and Laplace transforms, and be familiar with the hypotheses, conclusions, and implications of the existence-uniqueness theorem of Picard for first-order systems.

Methods of Assessment of Learning Outcomes: Assessment will be achieved through one or more activities, non-graded and graded, such as lecture attendance, class discussion, board work, selected homework, examinations and other optional activities deemed appropriate by the professor. Class grades will be assigned as follows:

Homework	assigned daily and collected the following class meeting	0%
Examinations	3 in-class examinations – 20% each	60%
Final Exam	Comprehensive, Thursday, May 6 th 7:30am – 10:00am	40%
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Total		100%

Exams: The first exam will be after chapter 2, the second after chapter 3, and the third after chapter 4. The material in chapter 5 will be covered in part of the final exam. You will have several days notice before each exam.

Final Exam: The final exam will be given on Thursday, May 6th in Math 112 at 7:30am. Each student is required to purchase a blue book for the final.

Make-Up Policy: There are no make-up exams except for absence due to religious observance or absence to due officially approved trips (see Class Attendance below). The student should make arrangements to take the exam **prior** to his/her absence.

Class Attendance: Students are cautioned that active participation in all class activities is necessary for success. Absences and tardiness must be avoided.

- Absence due to religious observance - *The Texas Tech University Catalog* states that a student who is absent from classes for the observance of a religious holy day will be allowed to take an examination or complete an assignment scheduled for that day within a reasonable time after the absence (p.49). Notification must be made in writing and delivered in person no later than the 15th class day of the semester.
- Absence due to officially approved trips - *The Texas Tech University Catalog* states that the person responsible for a student missing class due to a trip should notify the instructor of the departure and return schedule in advance of the trip. The student may not be penalized and is responsible for the material missed.
- Whether an absence is excused or unexcused is determined solely by the professor with the exception of absences due to religious observance and officially approved trips described above. The Center of Campus Life will notify faculty, at the student's request, when a student is absent for four consecutive days with appropriate verification of a health related emergency. This notification **does not** excuse the student from class; it is provided as a courtesy. More information about this service can be found on the Center of Campus Life website <http://www.campuslife.ttu.edu/crisis/>.

Communication: You are invited and indeed strongly encouraged to make use of my office hours and/or to schedule appointments. You may also feel free to stop by my office anytime; you will be welcome, although an appointment will ensure my undivided attention. If at anytime during the course you need help or special consideration regarding any subject, please do not hesitate to speak with me.

In the event that you need to contact me via email, please include “**Math 3350-006**” and the title of the email (e.g., homework question, attendance) in the subject line. For example, the subject line may read “Math 3350-006: Attendance.” I will respond to email within 24 hours during the work week (excluding holidays).

Academic Integrity (extracted from 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 it 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.

Accommodation for Students with Disabilities (extracted from OP 34.22): Any student who, because of a disability, may require some special arrangements in order to meet course requirements should contact the professor (in MA 219) as soon as possible to make the necessary arrangements. Students should present appropriate verification from Student Disability Services during the professor's office hours. Please note instructors are not allowed to provide classroom accommodations to a student until the appropriate verification from Student Disability Services has been provided. For additional information, you may contact the Student Disability Services office in person at 335 West Hall, via phone at 806-742-2405, or via email at sds@ttu.edu.