

MATH 2552 Syllabus

Differential Equations, Section-HP, 4-credit hours.

Fall 2026.

Instructor Information.

Instructor: Mamillapalle, Karthikeya Sameer Kumar.

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General Course Information:

Description:

This course teaches methods solving elementary differential equations, including first-order equations and linear equation systems. Applications are also discussed with modeling. Qualitative studies of solutions, emphasizing stability and instability, are discussed throughout the course.

Course Learning Outcomes:

1. Solve first-order differential equations.
2. Solve first-order linear differential systems.
3. Solve second-order linear differential equations.
4. Solve differential equations using Laplace transforms.
5. Solve some real-world problems using differential equations.
6. Analyze stability within linear and nonlinear differential equation solutions..
7. Solve first-order differential equations using basic numerical methods.

Required Course Materials:

Title: Differential Equations-An Introduction-to-Modern Methods and Applications.

Edition: Third Edition.

Authors: James Brannan and William Boyce.

Publisher: John Wiley & Sons.

Availability: Georgia Tech Barnes & Noble Bookstore.

Grading Policy:

Quizzes-24%, Midterms-34%, Final-37%; online Homework-5%.

Grading Scale:

$A \geq 90$; $B \geq 80$; $C \geq 70$; $D \geq 60$, $F < 60$.

Description of Graded Components:

1. Quizzes:
 - (a) Quiz Requirements: Five total assessments.
 - (b) Score Adjustment: Dropping the lowest quiz performance.
 - (c) Weighting: 6% per quiz
2. Midterms:
 - (a) Midterm Requirements: Two total assessments.
 - (b) Weighting: 17% per midterm
3. Online homework:
 - (a) Homework Platform: Online assignments via WeBWork.
 - (b) Score Policy: Dropping the two lowest performances from HW01-HW15.
4. Final-Exam:
 - (a) Final-Exam Requirements: One assessment.
 - (b) Weighting: 37%
5. Students attend quizzes, midterms & final in-person. These assessments require completing work without using external notes or textbooks. The instructor prohibits the use of any electronic equipment during these in-person assessments.

Course Policies:

Extra Credit Opportunities:

1. **Studio Attendance:** Maintain 80-percent attendance within enrolled studio sessions and earn a 1-percent final average bonus. Digital learning days, the first week, and the final session include "present" marks.
2. **CIOS Survey:** Achieving 85-percent lecture CIOS response-rate before the final session grants all students a 1-percent course average bonus.

Attendance and Participation:

Regular class attendance directly correlates with higher scores. Please attend each class. Inform me regarding absences. Staying current remains our priority.

Academic Integrity

Students must maintain highest ethical standards. Review Georgia Tech's Honor Code and the student Code of Conduct. Suspected assessment violations necessitate Office of Student Integrity notification, investigation, & penalties.

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services (404-894-2563) as soon as possible to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs.

Student-Faculty Expectations Agreement

The Student-Faculty Expectations document details mutual requirements. Practice Georgia Tech ideals consistently throughout this term.