

MATH 2550 Section D — Fall 2026 Syllabus

Introduction to Multivariable Calculus

Section

D (CRN 86623), 2 credit hours

Lecture

Mondays and Wednesdays, 9:30–10:20 AM

Location

Instructional Center 211

Studio

Attend your registered D01, D02, or D03 Friday studio; consult OSCAR and Canvas for the assigned time and room

Term dates

August 24–December 17, 2026

Final examination

Wednesday, December 16, 2026, 8:00–10:50 AM; location to be announced

Important: This syllabus may be revised before the first class meeting on August 24. Any substantive change after that date will be communicated through a Canvas announcement.

Instructor Information

Instructor

Dr. Borong Zhang

Email

borongzhang@gatech.edu

Office

Skiles 238A

Office hours

To be determined; details will be announced on Canvas

Teaching-assistant information and studio-specific announcements will be posted on Canvas rather than included in the public syllabus.

General Course Information

Description

This course introduces multivariable calculus through vectors in three dimensions, curves in space, functions of several variables, partial derivatives, optimization, and integration of functions of several variables. Vector calculus—including the theorems of Green, Gauss, and Stokes—is not covered. The course is intended to prepare students for later work that uses multivariable mathematical models.

Course Learning Outcomes

Upon successful completion of this course, you should be able to:

- describe three-dimensional vectors, surfaces, and multivariable functions geometrically;
- analyze vector-valued functions with calculus to characterize motion and paths in two and three dimensions;
- calculate and interpret derivatives of multivariable functions to describe, estimate, and optimize change;

- formulate and solve unconstrained and constrained multivariable optimization problems;
- construct and evaluate double and triple integrals in Cartesian, polar, cylindrical, and spherical coordinates; and
- interpret multivariable quantities in geometric and applied contexts and communicate the reasoning used to obtain them.

Prerequisites

The prerequisites are:

- Calculus II: MATH 1552 or MATH 1X52; and
- Linear Algebra: MATH 1553, MATH 1554, MATH 1564, MATH 1X53, or MATH 1X54.

Students should be comfortable with algebra, precalculus, differential and integral calculus, techniques of integration, and basic linear algebra. See the [School of Mathematics MATH 2550 course page](#) for the official prerequisites and topic outline.

Required Course Materials and Platforms

No textbook purchase is required. The course is taught at the level of *Thomas' Calculus: Early Transcendentals*, 15th edition (Pearson), which is an optional reference. Required readings, handouts, and access instructions will be provided or linked through Canvas.

Canvas is the official channel for announcements and course documents. Piazza is the preferred forum for mathematical questions and course discussion; use the course link in Canvas and search existing posts before starting a new thread. WeBWorK will be used for homework, and Gradescope will be used to return and review graded quizzes and exams. Platform changes, if any, will be announced on Canvas.

Course Topics

Topics will proceed in the following order. The detailed calendar and exam coverage will be maintained on Canvas.

1. Vectors and the geometry of space: dot and cross products, lines and planes, cylinders, and quadric surfaces.
2. Vector functions and curves: limits, continuity, tangent vectors, motion, arc length, and curvature.
3. Functions of several variables: graphs and level sets, limits and continuity, partial derivatives, the chain rule, directional derivatives, gradients, tangent planes, and Taylor approximation.
4. Optimization: extreme values, saddle points, and Lagrange multipliers.
5. Multiple integration: double and triple integrals, applications, coordinate systems, and changes of variables.

Grading

Grading Policy

The components of the course are weighted as follows:

Grading weights

Component	Weight
Studio participation	3%
Homework	12%
Quizzes	15%
Midterm 1	15%
Midterm 2	15%
Midterm 3	15%
Final examination	25%
Total	100%

If your final-exam percentage is higher than your lowest midterm percentage, the final examination will count for 30% and the lowest midterm will count for 10%. The remaining weights are unchanged. A student found responsible for academic misconduct in this course is not eligible for this replacement policy.

After all category grades are computed, the standard letter-grade cutoffs are:

Letter-grade cutoffs

Letter grade	Final course percentage
A	90–100
B	80 to below 90
C	70 to below 80
D	60 to below 70
F	Below 60

Grades are not rounded; for example, 89.99 is below 90. Cutoffs may be adjusted only downward, in a way that raises rather than lowers letter grades. If a course-level adjustment is made, it will be applied to final overall percentages, not to individual assessments. There is no extra credit and there are no quiz or exam retakes.

Description of Graded Components

Studio participation

Beginning the week of August 31, participation will be recorded in each of the 13 graded studio meetings. Each meeting is scored 0 or 1. Your four lowest studio-participation scores are dropped, so earning participation credit in nine of the 13 graded studios gives full credit in this category. Arriving more than five minutes late or leaving before the studio is dismissed may result in a score of 0. There are no separate makeup studios; approved accommodations and Institute-authorized absences will be handled under Georgia Tech policy.

Homework

There are 186 homework points available in WeBWork. The homework category is computed as the number of points earned divided by 125, capped at 100%. Thus, points above 125 provide built-in flexibility for occasional missed or incorrect problems. Due dates appear in WeBWork and on the Canvas course calendar. Late homework is not accepted except when required by an approved accommodation or warranted by an extraordinary documented circumstance.

Quizzes

Seven 10-minute quizzes will be given at the end of selected Friday studio meetings. Dates and topics will be listed on the Canvas course calendar. Your lowest quiz score is dropped. Quizzes are in person; online proctoring is not available.

Midterm examinations

Three 50-minute midterms are scheduled in person during the regular lecture time:

1. Wednesday, September 23;
2. Wednesday, October 21; and
3. Wednesday, November 18.

The Canvas course calendar will identify the material covered on each exam. If the pace of the course requires a change, the calendar will be updated and a Canvas announcement will be sent.

Final examination and final assessment policy

The final assessment is a cumulative, in-person final examination scheduled for **Wednesday, December 16, 2026, 8:00–10:50 AM**. The location will be announced on Canvas. This time is assigned by the [Fall 2026 Final Exam Matrix \(PDF\)](#). Travel plans are not a basis for taking the exam early. Students with a documented final-exam conflict should notify the instructor at least two weeks before the first day of the final-examination period.

Final instructional days

No homework, quizzes, exams, projects, presentations, studio work, or other graded work will be due during the final instructional days, December 7–8. There will be no graded activity during the December 9 reading period.

Key Dates

Key course dates

Date	Event
August 24	First day of class
September 7	Labor Day; no class
October 5–6	Fall break; no class
October 31	Withdrawal deadline, 11:59 PM Eastern Time
November 25	Student recess; no class
November 26–27	Thanksgiving holiday; no class or studio
December 7–8	Final instructional days
December 9	Reading period
December 16	Final examination, 8:00–10:50 AM
December 17	End of term

The [Registrar's academic calendar](#) is authoritative and is subject to change.

Course Policies

Attendance and Participation

You are expected to attend lecture and your registered studio, arrive on time, and engage respectfully with the course. If you are absent, you remain responsible for missed material, assignments, announcements, and schedule changes. Keep electronic-device use focused on class-related work and avoid behavior that distracts others.

Missed Work and Approved Absences

The homework point cap, four dropped studio scores, and dropped quiz score provide flexibility for ordinary short absences; individual extensions or makeup studios are not normally offered. Institute-approved absences, religious observances, disability accommodations, and emergencies will be handled in accordance with [Georgia Tech attendance policy](#).

For planned Institute-approved absences and religious observances, notify the instructor by Wednesday, September 2, or as soon as the absence is approved. For illness or an emergency, communicate as early as reasonably possible—and before an assessment when circumstances permit. Verification should be routed through the appropriate Institute office when requested. The timing and format of a makeup or alternative assessment will be determined by the instructor and course coordinator. An unapproved missed quiz or exam receives a score of 0.

Academic Integrity, Collaboration, and Generative AI

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to follow the [Academic Honor Code](#), the [Student Code of Conduct](#), and the Institute's [policy on](#)

[artificial intelligence in academic contexts](#). Suspected violations will be reported to the Office of Student Integrity; findings and penalties follow Institute procedures.

The following course-specific rules apply:

- You may discuss homework concepts and general strategies with classmates, tutors, and course staff, but the work you submit must be your own and must reflect your own understanding.
- Unless a written instruction for an assignment explicitly says otherwise, generative-AI systems (including ChatGPT and other LLMs), solution repositories, and computational answer engines such as Wolfram Alpha may not be used to generate or supply answers for graded work.
- Generative AI may be used on ungraded study activities to request explanations or additional practice problems, but its output must be checked critically and may not be copied into graded submissions.
- Quizzes and examinations are individual, closed-book, and closed-notes. Calculators, phones, smart watches, smart glasses, earbuds, headphones, and other electronic devices are not permitted unless the instructor has given explicit written authorization.
- You may not copy another person's work, allow another person to copy yours, communicate about an assessment while it is available, take an assessment for another person, or alter work before requesting a regrade.

When uncertain whether a resource or form of collaboration is permitted, ask before using it.

Accommodations for Students with Disabilities

Students who may need disability-related accommodations should contact the [Office of Disability Services](#) (404-894-2563) as early as possible. After an accommodation letter is issued, email the instructor to discuss implementation. You are not required to disclose diagnostic information to the instructor.

Student–Faculty Expectations and Belonging

The [Student–Faculty Expectations](#) describe the mutual respect, acknowledgment, and responsibility expected in Georgia Tech courses. Respect for knowledge, effort, and cordial interaction will help us build the learning environment we seek.

As members of the Georgia Tech community, we are committed to a classroom in which students feel safe, included, and able to participate actively. Because students have different needs and experiences, constructive feedback about what would improve the learning environment is welcome.

Communication and Grade Questions

Check Canvas announcements and the syllabus before emailing about schedules or policies. Post mathematical and course-content questions on Piazza whenever possible so the whole class can benefit. You are encouraged to answer classmates' questions and discuss approaches, but do not post answers to active graded assessments or personal grade information. Questions that should not be public may be sent as private Piazza posts to the course staff. Mathematical questions are also welcome during office hours. For privacy, substantive grade discussions should take place during office hours or an appointment rather than by email. Email is appropriate for reporting a possible recording error in Canvas.

Once a graded exam or participation score is posted, check that the Canvas or Gradescope record is complete and accurate. Report a recording error within two weeks of the posting date.

Regrade Requests

Exam regrade requests must be submitted through Gradescope during the announced window, which will remain open for at least 72 hours. A request must identify a specific grading error and refer to the relevant rubric item or solution. A regrade may review the entire problem, so the score may increase, decrease, or remain unchanged. Late requests and requests sent by email normally will not be considered.

Inclement Weather and Digital Learning Days

If campus operations are modified, an in-person class may be canceled or moved temporarily to a digital format. Instructions will be sent through Canvas and will follow Institute guidance. Do not assume that a class has moved online unless an announcement says so.

Core IMPACTS

MATH 2550 is not designated as a Core IMPACTS course.

Campus Resources

Academic Support

Georgia Tech provides free academic support through [Academic Success and Advising](#). Mathematics support includes the [Math Lab](#), [one-to-one tutoring](#), and other services listed on the [Tutoring and Academic Support website](#), which provides current schedules and availability.

Student Well-Being

Georgia Tech supports students' physical, social, and mental well-being. The [Student Resource Guide](#) provides a current, comprehensive list of support services. Reaching out early for help is encouraged.

Version dated August 22, 2026. Official course logistics and Institute dates were checked against Georgia Tech sources; Canvas will carry any subsequent course-specific updates.