MATH 2550 Introduction to Multivariable Calculus

GEORGIA TECH EUROPE

COURSE SYLLABUS

Updated on Jan 30 2026

Welcome to Introduction to Multivariable Calculus !

All our students play an important role in our educational mission.

Course Description

Course Title: Math 2550, Introduction to Multivariable Calculus

Course Meeting Times: Mondays, Tuesday 3:55 – 5:10pm Lecture in Blue Room

Wednesdays 3:55 – 5:10pm Studio in Blue Room

Instructor

Instructor: Hyun Jeong KIM   **Office**: 303

Office Hours: M, T, W, Th 9:30-12:00

E-mail: hkim3224@gatech.edu

Textbook

Calculus: Early Transcendentals, 14th ed. by G. B. Thomas Jr. Pearson. ISBN 978-1292253220. The GT Bookstore has online, hard cover, and soft cover editions available. Select topics from chapter 12, 13, 14 and 15 will be covered. A pdf version of our textbook will be posted on Canvas.

Prerequisites:

MATH 1502 OR MATH 1512 OR MATH 1555 OR MATH 1504 ((MATH 1552 OR MATH 15X2 OR MATH 1X52) AND (MATH 1522 OR MATH 1553 OR MATH 1554 OR MATH 1564 OR MATH 1X53))

Course Learning Objectives

At the conclusion of this course, it is expected that students will be able to do the following.
- Apply dot and cross products to describe relationships between points, lines, and planes.
- Characterize the motion of an object in three dimensions using quantities such as arc length and curvature.
- Apply partial derivatives to 1) approximate functions using Taylor's formula, tangent planes, and differentials, and 2) solve unconstrained and constrained optimization problems.
- Construct integrals of functions of several variables in rectangular, spherical, and other coordinate systems, and calculate the value of these integrals.
- Apply multivariable calculus concepts to real-world problems such as optimization and calculating volumes, moments and centers of mass.
- Compose logical progressions of precise statements to justify your reasoning and communicate your mathematical solutions.

Assessments & Information

HOMEWORK: Homework will be assigned on-line every week via **Webwork**. Each homework will be due on Tuesdays at 11:59 PM *at which time the solutions will also become available.*

Math is not a spectator sport! Homework is an essential part of the course; the only way to learn math is by doing math.

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a. You are expected to understand **all** homework problems for the exams and quizzes. We strongly recommend working homework problems out completely on paper even though that work is not graded- this is your chance to build good habits in your work and ensure you understand every step.

b. ***Late homework will not be accepted, and no extensions will be given for any reason.*** All homework due dates are currently posted on the WebWork system and on our course Calendar. Each homework is assigned a week earlier and so you have time to finish it earlier if you expect some conflicts on the due date.

c. There are 10 weekly homework of total 134 points approximately and each weekly homework consists of 2-3 sections of Webwork questions that are due on the same day. The homework component of your grade will be the fraction of points you earn out of 114, capped at 100% (equivalent to 10 pts of the final grade) and the rest of the points will be given as bonus to the final exam score up to 1% not to exceed 100%.

d. You are very welcome to **collaborate with other students on solving homework problems (and during Studio)**; in fact, we encourage you to do so. Talking with others gives you a chance to consider issues you might not have thought of yourself and often improves your understanding. You learn the best when you teach someone. However, it is important that you understand the homework yourself by the end, or quizzes and exams will be of extreme difficulty. Of course, it is ***always*** unacceptable to copy a solution from any source or to look up answers online.

PARTICIPATION: Attending class is important. Class attendance for both lectures and studios will be recorded and scored on a 0-2.5 scale out of 2 points. The scale is determined as follows: 2.5 points for above 90%, 2 points for above 85%, 1 point for above 80%, and 0 otherwise. The participation grade will be added onto the final average with a possible 0.5 bonus at the end of the term. Late arrivals and early departure will be noted and three of these will be counted as one absence.

QUIZZES: There will be 7 quizzes of 20 minutes on every **Wednesday** during Studio except when there's a midterm or when there's a public holiday. **Two** lowest quiz scores will be dropped. Each quiz is graded out of 20 points and the total quiz grade out of 100 consists of 5 best quizzes, which is 20% of the final grade – see below the distribution table.

MIDTERMS: There will be 2 midterms of 75 minutes on **Wednesday** during Studio. There's no dropping for midterm. Each midterm is graded out of 50 points and the total midterm grade out of 100 consists of 60% of the better midterm + 40% of the other, which is 30% or 38% of the final grade - see below the distribution table.

Important : **The dates for all the tests** are already published - **see the last page.** Please do not make any plan for travel for these dates as no make-up or earlier tests will be allowed due to travels! Missing test will be marked as 0.

FINAL EXAM: The final exam will cover all course materials and will be administered during the final exam period (the exact date will be announced later.) for 2 hours and 50 minutes. All students must take the final examination and should not plan for travel during the final exam period before all the exam dates are fixed. No earlier or late exam will be allowed for travel plans.

Grades Distribution

Final grades will be calculated using whichever of the following weights yields the higher grade.

Assessment	Weight 1	Weight 2
Participation	2% (possible 0.5pt bonus)	2% (possible 0.5pt bonus)
Webwork Homework	10%	10%
5 best Quizzes	20%	20%
2 Midterms (Better midterm 60% + The other 40%)	30%	38%
Final Exam (possible 3% bonus)	38%	30%

CIOS Bonus: When the participation to the survey for both Lecture and Studio is above 85%, there will be 2% bonus to the final exam score not to exceed 100%.

Letter grades will be determined based on the usual intervals. **A**: 90% and higher, **B**: [80%, 90%), **C**: [70%, 80%), **D**: [60%, 70%), **F**: [0%, 60%). For example, a final grade of 89.99% is converted into a B, a final grade of 79.99% is converted into a C, and so on. There will be NO changes to these intervals because there will be an appropriate curve or make-up test depending on the average for each test. No individual curve, extra credits, or make-up exam (except for absences.) Please do NOT email me asking for extra credits.

Expectations

Students

Students are expected to attend all the lectures and behave at all times in a respectful manner to their instructor and fellow students. Students are expected to study the subject matter outside of class time, review this syllabus, review their graded work in a timely manner for potential marking errors and to review where mistakes were made (if any), and ask for help when needed. Students are responsible for obtaining any announcements or missed materials sent by email, by Canvas or communicated orally in class.

Instructor

As your instructor, my role is to facilitate interactive lectures, coordinate with teaching assistants to grade student's work and facilitate learning activities, provide students with assessments that both develop and measure their understanding and knowledge of the subject matter, provide feedback on their performance, provide solutions to midterms, and be available for assistance when requested.

Preparing for Tests

Practice materials and additional office hours will be offered prior to each test. Depending on your goals, you may need to complete additional work beyond homework, worksheets, and practice materials to adequately prepare for them.

Tests Policies

Midterm and Final Exam Procedures

Tests Procedures

- Books, notes, cell phones, and calculators are not allowed during tests.
- Students may have something to write with and an eraser when taking tests.
- Unless students are asked to use a particular method or theorem, they are allowed to use any approach

to solve any problem they are given on any test.

- Unless indicated otherwise, students must adequately justify their reasoning for full marks.

- Marks can be taken off in a test for not using the correct notation.

- The tests are comprehensive.

- Students who are unable to take any test for any reason are responsible for notifying their instructor prior to the exam and as soon as possible.

- Tests will be returned to students in class.

Additional Final Exam Procedures

Students take their final exam in the room where they have lectures (as per institute policy). The duration, date, and time of the final exam for local students will be announced later. It is also listed on the registrar website: http://www.registrar.gatech.edu/registration/exams.php Note that the schedule of the final exam is non-negotiable.

Re-grade Requests for Tests

1) If any of your work has been graded in error, you should contact your **instructor** as soon as possible.

2) Teaching assistants are not permitted to handle re-grade requests.

3) Should you wish to have your work re-graded, do not change or add to the work on your paper.

4) A re-grade request can only be submitted if you did something correct that was marked as incorrect.

5) Re-grade requests **must be requested within two weeks** after the work has been returned to you.

6) You must check your answers with the solutions before submitting such a request.

7) To submit a re-grade request, you must send your instructor an email from your GT email account that contains your first and last name, the midterm you are referring to, the question(s) you are referring to, and a description of what was graded incorrectly.

Illnesses, Emergencies, Absences

Students who will miss a midterm or final exam due to a university-sponsored event or athletics should provide their instructor with the official documentation in advance. Any student who misses a test, with reasonable explanation, can write a make-up. Students must notify their instructor as soon as they can to make necessary arrangements.

Re-Scheduled/Missed Exams

NO MAKE-UP EXAMS! In general, no make-up exams will be given and any missed exam results in a "0" score.

- In an emergency situation, I may allow a make-up quiz or test if I am notified prior to the exam and provided with a reasonable, written confirmation of your absence. Any make-ups must be completed before the corresponding quiz or test has been graded and returned to other students. If you will miss a test due to a university-sponsored event or athletics, please provide me with the official documentation in advance.

- In the case of illness and emergency, please contact the <u>Office of Dean of Students</u> immediately. The Dean's office will verify the case, determine the severity of the problem, and then interact with the instructor if necessary.

- Requests for student organization excused absences must be made no later than two weeks prior to the date of the event. No late requests will be honored. Please have your advisor send me a written notice or an e-mail.

- Students who are absent because of participation in a particular religious observance will be permitted to make up the work missed during their absence with no late penalty, provided the student informs me

of the upcoming absence, in writing, within the first two weeks of class, and provided the student makes up the missed material within the timeframe established by the course instructor.

- If you have off campus interviews for jobs or graduate/professional schools on the test dates, please contact me as early as possible with a supporting document.

Class Policies

Attendance

In the event of an absence, you are responsible for all missed materials, assignments, and any additional announcements or schedule changes given in class. Class disruptions of ANY kind will NOT be tolerated and may result in your removal from the classroom. Please show courtesy to your fellow classmates and instructor by adhering to the following class rules.

- Come to class on time and stay for the entire class period. Late arrivals or Early departures will be marked as late on Canvas and will be accounted for the participation score.

- Refrain from conversing with your fellow students while the instructor is lecturing.

- Put away any reading materials unrelated to the course.

- Please, keep your laptops, cell phones or headsets in your bag, and do not bring food to eat during lectures, they are a distraction to others.

Academic Dishonesty

All students are expected to comply with the Georgia Tech Honor Code (see http://www.policylibrary.gatech.edu/student-affairs/code-conduct). Any evidence of cheating or other violations of the Georgia Tech Honor Code will be submitted directly to the Dean of Students. Cheating includes but is not limited to the following.

Using a calculator, cell phone, books, or any form of notes on exams.

Copying directly from **any** source during an exam, including friends, classmates, or a solutions manual.

Allowing another person to copy your work. Taking a test using someone else's name, or having someone else take a test in your name.

Asking for a re-grade of a paper that has been altered from its original form.

Using someone else's name to gain participation points for them, or to take tests for them, or asking someone else to use your identity for any graded or participation submission.

Students with Disabilities and/or in need of Special Accommodations

Georgia Tech complies with the regulations of the Americans with Disabilities Act of 1990 and offers accommodations to students with disabilities. If you are in need of classroom or testing accommodations, please make an appointment with the ADAPTS office to discuss the appropriate procedures. More information is available on their website, http://www.adapts.gatech.edu

Campus-Wide Dates

May 20 First day of class (Wednesday)

May 29, July 10 and July 17 classes exceptionally on Friday.

May 25 (Monday), July 13, 14 (Monday, Tuesday) Bank Holiday

July 27, 28 Last Instructional Days

July 29 – August 6 Final Exams Period

TENTATIVE SCHEDULE

Week	Section Coverage	Tests	Dates
Week 1 **May 20, 22**	Syllabus, 12.1-4 WS 12.1-4, Pretest	Prerequisite Test **on May 22 (Fri)**	First day of Class on May 20 (Wed) Lecture on May 22 (Fri) exceptionally
Week 2 **May 26, 27, 29**	12.5, WS 12.5 12.6, WS 12.6 WS 12.5-6, Quiz 1	Quiz 1 **on May 29 (Fri)** on sections 12.1-4	May 25 (Mon) Bank Holiday HW 1 due May 27 (Wed) Lecture on May 29 (Fri) exceptionally
Week 3 **June 1, 2, 3**	13.1-2, WS 13.1-2 13.3-4 WS 13.3-4 , Quiz 2	Quiz 2 **on June 3 (Wed)** on sections 12.5-6	HW 2 due June 2 (Tue)
Week 4 **June 8, 9, 10**	14.1, WS 14.1 Review Mid 1	Mid 1 **on June 10 (Wed)** on sections 12.1-6, 13.1-4	HW 3 due June 9 (Tue)
Week 5 **June 15, 16, 17**	14.2, WS 14.2 14.3, 14.4 WS 14.3-4, Quiz 3	Quiz 3 **on June 17 (Wed)** on section 14.1	HW 4 due June 16 (Tue)
Week 6 **June 22, 23, 24**	14.5, WS 14.5 14.6, WS 14.6 14.7, Quiz 4	Quiz 4 **on June 24 (Wed)** on sections 14.2-4	HW 5 due June 23 (Tue)
Week 7 **June 29, 30, July 1**	14.7, WS 14.7 14.8, WS 14.8 15.1-3 , Quiz 5	Quiz 5 **on July 1 (Wed)** on sections 14.5-7	HW 6 due June 30 (Tue)
Week 8 **July 6, 7, 8, 10**	15.1-3, WS 15.1-3 Review Mid 2 15.4, WS 15.4	Mid 2 **on July 8 (Wed)** on sections 14.1-8	HW 7 due July 7 (Tue) Lecture on July 10 (Fri) exceptionally
Week 9 **July 15, 17**	15.5-6 WS 15.5-6 Quiz 6	Quiz 6 **on July 17 (Fri)** on sections 15.1-4	HW 8 due July 16 (Thu) Studio on July 17 (Fri) exceptionally
Week 10 **July 20, 21, 22**	15.7 15.8, WS 15.7 WS 15.7-8, Quiz 7	Quiz 7 **on July 22 (Wed)** on sections 15.5-6	HW 9 due July 21 (Tue)
Week 11 **July 27, 28**	Review for Final Review for Final	Final Exam – Date to be fixed on sections 12.1-15.8	HW 10 due July 28 (Tue)

Please use this as an approximate class schedule. Section coverage may change depending on the flow of the course.