MATH 2550 Introduction to Multivariable Calculus

GEORGIA TECH EUROPE

COURSE SYLLABUS

Updated on Sep 14 2025

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: Lecture : Mondays, Tuesdays 8:30 – 9:20

Studio : Wednesdays 8:30 – 9:20

Instructor

Instructor: Hyun Jeong KIM

Office: **103B**

Office Hours:

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.

PLEASE NOTE: GEORGIA TECH HAS A SPECIAL CODE PACKAGE THAT INCLUDES BOTH TEXTBOOKS. THIS CODE CAN ONLY BE PURCHASED THROUGH THE CAMPUS BOOKSTORES OR DIRECTLY FROM PEARSON. CODES PURCHASED BY OTHER VENDORS WILL NOT WORK! Possible ISBNs for this text are: 1323131760, 1323132112, 132313204X, 1323132104, or 1323132120.

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))

We will need to do a lot of calculus (differentiation and integration), Precalculus (domains and graphs of various functions) and Algebra.

Communication

Announcements, course-related documents and homework assignments will be posted on **Canvas**.

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 in space.
- Characterize the motion of an object in two/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, cylindrical, 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 (except during class recesses or as announced otherwise in class) *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.

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.*** **I don't know how to!** All homework due dates are currently posted in the WebWork system and on our course Calendar.

c. There are 14 weekly homework and each weekly homework consists of 2-3 sections of Webwork questions that are due on the same day. 12 best weekly homework scores will be counted up to 100% of homework grade (equivalent to 10 pts of the final grade) and the other two weekly homework will be given as up-to-5%-bonus (hence up to 0.5pt bonus to the final grade).

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 and participation for both lectures and studios will be recorded and scored on a 0-2.5 scale. The scale is determined as follows: 2.5 points for above 90% attendance for both Lecture and Studio, 2 points for above 80% attendance for both Lecture and Studio, and 1 point for above 80% in one and 80-60% in the other, 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, affecting all borderline grades. Late arrivals and early departure will be also noted.

QUIZZES: There will be 5 quizzes of 30 minutes on Thursdays. **One** lowest quiz score will be dropped. Each quiz is graded out of 25 points and the total quiz grade out of 100 consists of four best quizzes, which is 20% of the final grade – see below the distribution table.

MIDTERMS: There will be 2 midterms of 1 hour 15 minutes on **Wednesdays**. 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 exams are already published. Please do not make any plan for travel for these dates as no make-up or earlier tests will be allowed! 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.

Assessments: Tests will be returned in class and solutions will be posted on Canvas.

Information: Announcements, Extra Assignments and Course Slides will be posted on Canvas.

Grades

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% (possible 0.5pt bonus)	10% (possible 0.5pt bonus)
3 best Quizzes	20%	20%
2 Midterms (Better midterm 60% + The other 40%)	30%	38%
Final Exam	38%	30%

CIOS Bonus: When the participation to the survey for both Lecture and Studio is above 85%, there will be 1pt bonus awarded to the entire class. (Total 2 points, out of 100, bonus in the final grade is possible.)

A **midterm grade** will be assigned around **Feb 23**. A satisfactory grade will be assigned to all students with a midterm average of 70% or higher.

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.

Office Hour and Help Desk

To get help with our course materials, use the office hour of myself and TA. If you need help outside office hours, make appointment with me by email.

For those who need help with prerequisite materials such as College algebra, Precalculus and Calculus, a few sessions or more with Help Desk will be suggested.

Tips for Success

To succeed in Math class, the minimum work you need to do is: Read Course Slides and review examples done in class thoroughly. Review worksheet questions done in Studio. Do homework and practice with the rest of the questions on the worksheets.

Most importantly, as soon as you find the course a bit challenging, you should use office hours regularly not to get behind.

Re-Scheduled/Missed Exams

NO MAKE-UP EXAMS! All the test dates are already published. No make-up or earlier test will be allowed due to travel. Please do not make any plan for travel for these dates and missing test score will be "0".

- In the case of illness and emergency, please contact me as early as possible.
- 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

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. If you need to leave the class early, please let me know at the beginning of the class.
- Refrain from conversing with your fellow students while the instructor is lecturing.
- Put away any reading materials unrelated to the course.
- **No laptop or cell phone is allowed on tables.** Please keep them **in your bag** with sound off.

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

For further information on campus-wide dates see http://www.registrar.gatech.edu/calendar

The date and time of the final exam is scheduled by the registrar.

For **final exam schedules**, see http://www.registrar.gatech.edu/students/exams.php.

TENTATIVE SCHEDULE

Week	Section Coverage in Lecture	Tests	Dates to Note
Week 1	12.1-3, 12.4	Pretest on Friday	First day of Class on Jan 14 Class on Friday Jan. 16 exceptionally
Week 2	12.4, 12.5	Quiz 1	Quiz 1 on Wed HW 1 due Tue
Week 3	12.6, 13.1-2		HW 2 due Tue
Week 4	13.1-2, 13.3-4	Quiz 2	Quiz 2 on Wed HW 3 due Tue
Week 5	13.3-4, 14.1, 14.2		HW 4 due Tue
Week 6	14.3, Review, Mid 1	Mid 1	Mid 1 on Wed HW 5 due Tue
Week 7		NO CLASS	SPRING BREAK
Week 8	14.4, 14.5		HW 6 due Tue
Week 7	14.6, 14.7	Quiz 3	Quiz 3 on Wed HW 7 due Tue
Week 10	14.7, 14.8		HW 8 due Tue
Week 11	15.1-3	Quiz 4	Quiz 4 on Wed HW 9 due Tue
Week 12	15.4, 15.5		HW 10 due Tue
Week 13	15.5, Review, Mid 2	Mid 2	Mid 2 on Wed HW 11 due Tue
Week 14	15.6, 15.7		HW 12 due Tue
Week 15	15.7, 15.8	Quiz 5	Quiz 5 on Wed HW 13 due Tue
Week 16	Review		April 21 Easter Monday HW 14 due Tue

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