MATH 2551 Multivariable Calculus

GEORGIA TECH EUROPE

COURSE SYLLABUS

Updated on Nov 18 2024

Welcome to Multivariable Calculus !

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

Course Description

Course Title: Math 2551, Multivariable Calculus, Section 3

Course Meeting Time: Mondays, Wednesdays. 1:30 – 3:25 pm. Room : F002

Studio Meeting Time : Tuesdays, Thursdays. 1:30 – 2:45 pm. Room : F002

Instructor

Instructor: Hyun Jeong KIM

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Office Hours: TBA

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TA : TBA

TA E-mail : TBA

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, 15 and 16 will be covered. MyMathLab(MML) is required for this course. We will have a look at this together on the first day. Do not buy the access code in advance!

Important notes on MML:

- If you already have an account on MyMathLab using this combined textbook within the past 18 months, then you do not need to purchase a new code. Login to your account on MyMathLab, select the option to add a new course, and enter our course ID (posted on Canvas).

- If you already have a MyMathLab account that used either the Thomas or the Lay textbook in the past 18 months, but you were unable to add our course using the previous step, please contact Pearson's customer service to result the problem with the following information.

1. Your First and Last Name
2. The email address used to register for MML
3. Your Login ID for MML
4. Our course ID

You should receive a reply within 36 business hours from the Pearson support team regarding your account status. In the meantime, you can access our course using the "temporary access" option when registering. Please do not pay for a new code until you receive a reply from Pearson.

- If you do not have a MyMathLab account using the Thomas or Lay textbooks, or if your account is over 18 months old, you will need to purchase a new code for our course.

When signing up for MyMathLab, it will be immensely helpful to me (for grading purposes) if you will set your STUDENT ID to your USERID for the GT.

MyMathLab comes with an entire electronic version of the textbook; it is your choice if you would also like to own the textbook in print. You may purchase a MyMathLab code either from the bookstore or on-line while registering at http://www.mymathlab.com. If you prefer to own a hardcopy of the text, the bookstore offers packages of MyMathLab combined with a loose-leaf or hardcover version of the Thomas textbook that is less expensive than purchasing the text and code separately.

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))

Course Learning Objectives

The course provides an introduction to multivariable calculus. It begins with a study of geometrical objects in several dimensions, including vectors, lines, planes, and quadric surfaces. It continues with differentiation and integration of vector functions, with some applications. Then there is a study of partial differentiation, and its application to problems of minimization and maximization, including the method of Lagrange multipliers. The next part of the course deals with integration of functions of two and three variables, emphasizing Fubini's Theorem and its applications. The last section deals with Green's Theorem, Gauss' divergence theorem, and Stokes' Theorem, and their applications.

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.
- Describe the motion of an object in 3 dimensions.
- Apply partial derivatives to approximate functions using Taylor's formula, tangent planes, and differentials; and solve constrained and unconstrained optimization problems.
- Calculate integrals of functions of several variables in rectangular, cylindrical, and spherical coordinates
- Calculate volumes and centers of mass
- Calculate flow and divergence using the theorems of Gauss, Green, and Stokes
- Justify your reasoning in presenting solutions to problems

Assessments & Information

HOMEWORK: Weekly homework will be assigned on-line and will consist of exercise problems on MyMathLab. You are expected to understand all homework problems for the tests. Each homework will be due on Wednesday at 11:59 PM (except during class recesses or as announced in class). The lowest two homework grades will be dropped. Late assignments are allowed with a penalty of 20%. I will also expect you to read ahead to prepare for each class lecture.

PARTICIPATION: Attending class is important. Class attendance and participation will be recorded and scored on a 0-2 scale. The scale is determined as follows: 2 points for above 80% attendance, 1 point for 50%-80% and 0 for below 50%. The participation grade will be added onto the final average at the end of the term, affecting all borderline grades.

QUIZZES: There will be three quizzes of 15 minutes during the recitation. One lowest quiz grade will be dropped. Tentative dates are on the last page.

MIDTERMS: There will be two midterms of 75 minutes during the recitation. Tentative dates are on the last page.

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.

Assessments: Midterms and Quizzes will be returned in class after grading and the solutions will be posted on Canvas for review.

5. Grades

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

Assessment	Weight 1	Weight 2
Participation	2%	2%
Homework	10%	10%
Quizzes	18%	18%
Midterms	40%	30%
Final Exam	30%	40%

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. Any changes to these intervals would only be made after the final exam. A **midterm grade** will be assigned. A satisfactory grade will be assigned to all students with a midterm average of 70% or higher.

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.
- 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 Office of Dean of Students 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.
- 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 and cell phones 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

(Some dates are only tentative dates. They will be updated as soon as the official calendar is available.)

May 14 2024 First day of class (Wednesday)

May 16, 23, June 13 and July 18 classes exceptionally on Friday.

May 29 2024 Bank Holiday (Thursday)

June 9 2025 Bank Holiday (Monday)

July 21-22 2024 Final Instructional Class days

July 25 – August 1 2024 Final Exams Period

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.

14. TENTATIVE SCHEDULE

Week and Dates	Section Coverage in Lecture	Tests	Registrar
Week 1 **May 14 – 16**	12.2 - 12.6, 13.1		First day of Class on May 14
Week 2 **May 19 – 23**	13.2 - 13.5	Quiz 1	Quiz1 on May 22 (Thu) HW 1 due May 21 (Wed)
Week 3 **May 26 - 28**	14.1 - 14.3		May 29 Bank holiday HW 2 due May 28 (Wed)
Week 4 **June 2 – 5**	14.4 - 14.6	Mid 1	Mid 1 on June 5 (Thu) HW 3 due June 4(Wed)
Week 5 **June 10 – 13**	14.7 - 14.9, 15.1		June 9 Bank Holiday HW 4 due June 11 (Wed)
Week 6 **June 16 - 19**	15.2 - 15.5	Quiz 2	Quiz 2 on June 19 (Thu) HW 5 due June 18 (Wed)
Week 7 **June 23 - 26**	15.6 – 15.8		HW 6 due June 25 (Wed)
Week 8 **June30, July 1 - 3**	16.1, 16.2	Mid 2	Mid 2 on July 3 (Thu) HW 7 due July 2 (Wed)
Week 9 **July 7 – 10**	16.3 - 16.5		HW 8 due July 9 (Wed)
Week 10 **July 15 – 18**	16.6 - 16.8	Quiz 3 July 14 Bank Holiday	Quiz 3 on July 17 (Thu) HW 9 due July 16 (Wed)
Week 11 **July 21-22**	Review		Last day of class on July 22 HW 10 due July 23 (Wed)