

MATH 2550 Course Syllabus

Welcome to Introduction to Multivariable Calculus. This course is designed for you to extend fundamental concepts you encountered in differential and integral calculus to several variables. We will characterize motion of objects in three dimensions, study the continuity, differentiation, and optimization of functions over several variables, and calculate integrals defined over several variables. All of our students play an important role in our educational mission, and I hope that you will find this to be a useful, fundamental course for your future studies.

Please note: items on the syllabus are subject to change. Any changes to the syllabus will be relayed to the students in lecture.

Instructor

Instructor: Zhiwu Lin

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Office: Skiles 115

Office Phone: 404-8949232

Office Hours: MW 1:30-2:50 pm and by appointment.

Teaching Assistants

C1: Liu, Chang (cliu371@gatech.edu)

C2: Acevedo, Jose (jga6@gatech.edu)

C3: Sanchez, Jose (jsanchez61@gatech.edu)

Course Meeting Times and Locations

MW, 09:05-09:55, Klaus 1456 (C1-C3)

Recitation

Friday, 09:05-09:55, Skiles 225 (C1)

Friday, 09:05-09:55, Skiles 156 (C2)

Friday, 09:05-09:55, Skiles 257 (C3)

Course Websites

Instructor's Web Page: <http://people.math.gatech.edu/~zlin/>

Course Information: t-square.gatech.edu (required)

Textbook/Homework Access: <http://www.mymathlab.com> (required)

Learning Catalytics: <https://learningcatalytics.com>

On-line Discussions: www.piazza.com

Textbook

Thomas, *Calculus: Early Transcendentals*, 13th edition. Select topics in chapters 12, 13, 14, and 15.

MyMathLab Course IDs: lin45425

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.
- 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 send an email to gatecmath@yahoo.com and include 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 (listed above)

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. Please refer to the registration document, located in the “Resources” section on t-square, to create your new account.

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 system (i.e., your T-square USERID, as in “gburdell3”, etc).

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.

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.

Course Requirements and Grading

HOMEWORK: 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. Exercises on MyMathLab will be due on Fridays 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% per day. 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 by Learning Catalytics, on a 0-1 scale. The scale is determined as follows: 1 point for above 75% attendance, 0 point for below 75%. The participation grade will be added onto the final average at the end of the term, affecting all borderline grades.

QUIZZES: A weekly quiz will be given on the recitation sessions beginning on the second week of class, except on test days. Quizzes will be administered during the first 10 minutes of class, and will be based on reading material, topics covered in lecture and the homework assignments due that week. The lowest two quiz grades will be dropped. No book, notes, calculators, cell phones, or other electronic devices are allowed during the quizzes.

TESTS: We will have three 50-minute tests on recitation sessions during the term. Tests will be administered on the following days:

- Test 1: September 22nd
- Test 2: October 20th
- Test 3: November 17th

No books, notes, calculators, cell phones, or other electronic devices are allowed during the tests.

FINAL EXAM: The final exam will cover all course materials and will be administered on **Dec 13 (WED), 8-10:50am for C1-C3 sessions**. All students must take the final examination.

Your final average will be computed by: Your final average will be computed with the following weights.

- 12% Quizzes
- 10% MML Homework
- 48% Midterms (16% each)
- 30% Final Exam

The participation score from 0-1 will be added onto the average as calculated above.

Letter grades will be determined based on the following intervals. **You will be guaranteed a minimum of the following scale:**

A: 90% and higher, **B:** [80%-90%), **C:** [70%- 80%), **D:** [60%- 70%), **F:** [0%- 60%).

Midterm grades will be assigned on September 30. A satisfactory grade will be assigned to all students with a midterm average of 70% or higher (based on the above weighting of grades).

Class Policies

Attendance: You are expected to come prepared and actively participate in every lecture session. 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 and/or loss of participation points for that day.

Please show courtesy to your fellow classmates and instructor by adhering to the following class rules:

- Turn off all laptops, cellular phones, iPad and other electronic devices, unless you have a documented need to use such devices for note-taking, during class.
- Come to class on time and stay for the entire class period.
- Except during group work, please refrain from conversing with your fellow students.
- Put away any reading materials unrelated to the course.

Academic Dishonesty: All students are expected to comply with the GeorgiaTech Honor Code (the honorcode can be found at <http://www.osi.gatech.edu/plugins/content/index.php?id=46>). 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:

1. Using a calculator, books, or any form of notes on quizzes or tests.
2. Copying directly from any source, including friends, classmates, tutors, internet sources (including Wolfram Alpha), or a solutions manual.
3. Allowing another person to copy your work.
4. Taking a test or quiz in someone else's name, or having someone else take a test or quiz in your name.
5. Asking for a regrade of a paper that has been altered from its original form.
6. Using someone else's clicker to gain attendance points or to take quizzes or tests for them, or asking someone else to use your clicker for any graded or attendance submission.

Regrading of Papers: If a problem on your test or quiz has been graded in error, you must submit a regrade request in writing, along with your paper, no more than one week after the papers have been returned in class. Should you wish to have your paper regraded, *do not change or add to the work on your paper!* If you must write on your returned paper, be sure to write in a different color ink and clearly indicate what you have added. A regrade request can only be submitted if you have done something CORRECT on your test that has been marked as incorrect. You MUST check your answers with the solutions BEFORE submitting such a request.

Make-Ups: 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.

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>. Please also make an appointment with me to discuss your accommodation, if necessary.

Calculators: While you may need a scientific calculator for help with some of the homework problems, the use of calculators is NOT ALLOWED on in-class assessments.

Announcements: I will frequently update the class pages with class information and materials. You are responsible for

obtaining any announcements or materials placed on my web page, MyMathLab, or Tsquare. Though not required, it is also to your advantage to join our class page on Piazza (www.piazza.com) so you can view/participate in course-related discussions.

Additional Help: Asking questions is a key to success! Please stop by my office hours whenever you have questions. Free help is also available Monday-Thursday afternoons in the Math Lab, located on the second floor of Clough Commons.

***Please note:** items on the syllabus and course schedule are subject to change. Any changes to the syllabus and/or course schedule will be relayed to the students in class and through e-mail.*

Important Dates throughout the term:

Aug 21 -- First Day of Classes

Sep 4 -- Official School Holiday (Labor Day)

Sep 22 -- Test #1 (C1-C3)

Oct 9-10 -- Fall student recess (NO CLASS)

Oct 20 -- Test #2

Oct 29 -- Last day to withdraw with a grade of "W"

Nov 17 -- Test #3

Nov 22-24 -- Thanksgiving Student Recess and Institute Break (NO CLASS)

Dec 5 -- Last Day of Class

Dec 13 -- Final Exam, 8-10:50am (for C1-C3 of 9-10class)

Quizzes and Midterms

We will have weekly 10 to 15 minute quizzes from 2nd week (except for the weeks with exams) and **three** 50-minute midterms during the term (see tentative dates above). Quizzes consist of questions similar to recent MML homework and worksheets. Solutions to quizzes and midterms will be posted on the course website.

Tentatively, midterms cover the following sections.

- Midterm 1: Covers everything up to and including Section 14.1
- Midterm 2: Covers everything up to and including Section 14.7
- Midterm 3: Covers everything up to and including Section 15.7

Final Exam

The final exam is comprehensive (it covers all course concepts). Students who are unable to attend the scheduled final exam for any reason are responsible for notifying their instructor prior to the exam and as soon as possible. The final exam can be rescheduled if you have three finals on the same day and this exam is the middle one.

Tentative Course Schedule

All dates in the table below are tentative. Cancellations of lectures due to inclement weather may result in moving through course material at a faster pace. WS = worksheet, WA = written assignment, HW = homework. Generally, assignments are due at beginning of lecture on Fridays, midterms and quizzes are held on Fridays, and MML homework is due Thursday evenings. Course textbook sections correspond exactly to those stated in the School of Mathematics course description for Math 2550 at <http://www.math.gatech.edu/course/math/2550>.

Week	Dates	Monday	Wednesday	Friday	Friday
		Lecture	Lecture	Due date of HW	Recitation
1	Aug 21 - 25	12.4	12.5	MML HW1	
2	Aug 28 – Sep 1	12.6	13.1, 13.2	MML HW2	Quiz 1
3	Sep 4 – Sep 8	Holiday	13.3	MML HW3	Quiz 2
4	Sep 11 – Sep 15	13.4	14.1	MML HW4	Quiz 3
5	Sep 18 – Sep 22	14.2	Midterm Review	MML HW 5	Midterm 1
6	Sep 25 – Sep 29	14.3	14.4	MML HW6	Quiz 4
7	Oct 2 – Oct 6	14.5	14.6	MML HW7	Quiz 5
8	Oct 9 – Oct 13	Fall Recess	14.7	MML HW8	Quiz 6
9	Oct 16 – Oct 20	14.8	Midterm Review	MML HW 9	Midterm 2
10	Oct 23– Oct 27	15.1, 15.2	15.3	MML HW 10	Quiz 7
11	Oct 30 – Nov 3	15.4	15.5	MML HW11	Quiz 8
12	Nov 6 – Nov 10	15.6	15.7	MML HW12	Quiz 9
13	Nov 13 – Nov 17	15.8	Midterm Review	MML HW13	Midterm 3
14	Nov 20 – Nov 24	Review	School Holiday		
15	Nov 27 – Dec 1	Review	Review		
16	Dec 4 – Dec 8	Review	reading period & final exams		
17	Dec 11 – Dec 15		final exam		

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

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