MATH 2550 Course Syllabus, Section C

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: Dr. Greg Mayer
E-mail: greg.mayer@gatech.edu (outside of lecture, e-mail is often the best way to contact your instructor)
Office Phone: 404-894-4397
Office Hours: Tue and Wed 3:00 to 4:00 pm, room Skiles 116; or by appointment. Additional office hours will be held around midterms and the final exam.

Lecture Assistants

Uddampreet Arora (uarora6@gatech.edu) and Yash Chandramouli (ychandramouli3@gatech.edu).
Office Hours (Skiles 230): Wednesdays 12 - 1, Uddampreet Thursdays from 4 - 5
Math Lab (CULC 280): Yash Thursdays from 12 – 1, Uddampreet Tuesdays from 4 - 5

Course Meeting Times and Locations

MWF from 11:05-11:55 am, in DM Smith 105.

Course Websites

Course Website: t-square.gatech.edu
Textbook and Homework: www.mymathlab.com
On-line Discussions: piazza.com/gatech/spring2016/math2550/home

Textbook

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

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.
Expectations

As your **instructor**, my role is to articulate learning objectives that define what skills you are expected to be able to demonstrate, facilitate interactive lectures, coordinate with lecture assistants to grade student work and facilitate learning activities, provide you with assessments that both develop and measure your understanding and knowledge of the subject matter, provide feedback on your performance, provide solutions to quizzes, midterms, and assignments, and be available for assistance when requested.

**Lecture assistants** are responsible for assisting with learning activities during Friday lectures, holding office hours, marking (roughly three hours per week), and responding to questions from students.

As **students**, you are expected to take your responsibility seriously, attend class, behave in a respectful manner to both your instructor and fellow students at each class meeting, complete all assignments in a timely and professional manner, study the subject matter outside of class time, and ask for help when necessary.

Announcements

I will frequently updates with class information and materials. **You are responsible for obtaining any announcements or materials placed on T-square** (t-square.gatech.edu). Please join our class page on Piazza (www.piazza.com) so you can view/participate in course-related discussions.

Preparing for Midterms and the Final Exam

Practice tests and additional office hours will be offered prior to midterms and the final exam. Depending on your own objectives, you may need to complete additional work beyond MML homework and practice tests to adequately prepare for midterms and the final exam.
Course Requirements and Grading

Books, cell phones, and calculators are not allowed during midterms and quizzes and the final exam. Students may bring one 8.5 x 11 sheet of notes to all quizzes, midterms, and the final exam, that may have writing on all sides. Students in different Math 2550 classes may receive different quizzes, midterms, and final exams.

Participation

Participation grades will not be counted in the first and last weeks of the course. Participation will be graded using Learning Catalytics and completion of select problems from Friday worksheets.

MML Homework

Homework are assigned on-line and consist of exercises on MyMathLab (MML). You are expected to understand all homework problems for all quizzes, midterms, and the exam. In order to increase the effectiveness of lectures, you should attempt the problems before them. Students who are unable to submit their homework before they are due because of technical difficulties or illness may contact their instructor to ask for an extension. There may be MML homework due the final week of class.

Written Assignments

Assignments questions will be posted on Piazza, consist of problems from the textbook, and students are write (or type) their assignment solutions out on paper. Not all assignment questions may be graded. Tentative assignment due dates are listed on last page of the syllabus. Assignments are due at the beginning of class, on the dates on the tentative schedule, located at the end of the syllabus.

Quizzes and Midterms

We will have five 10 to 15 minute quizzes and four 50-minute midterms during the term. Tentative dates are on the last page of the syllabus. Quizzes consist of questions similar to recent MML homework and worksheets. Solutions to quizzes and midterms will be posted on the course website or Piazza. Tentatively, midterms cover the following sections.

- Midterm 1: Covers everything up to and including Section 13.2
- Midterm 2: Covers everything up to and including Section 14.3
- Midterm 3: Covers everything up to and including Section 14.8
- Midterm 4: Covers everything up to and including Section 15.5

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.

Grades

Your final average will be computed with the following weights.

- 5% Participation
- 5% Quizzes
- 10% MML Homework
- 15% Written Assignments
- 40% Midterms
- 25% Final Exam
Letter grades will be determined based on the following intervals: A: [100%, 90%), B: [80%, 90%), C: [70%, 80%), D: [60%, 70%), F: [0%, 60%). Students should not expect any changes to these intervals.

Re-grading

- If any of your work has been graded in error, you should contact your instructor as soon as possible.
- Should you wish to have your work re-graded, do not change or add to the work on your paper!
- A re-grade request can only be submitted if you have done something correct that has been marked as incorrect.
- Re-grade requests must be requested within one week after the work has been returned to you.
- You must check your answers with the solutions before submitting such a request.

Illnesses, Emergencies, Absences

1. Students who encounter last-minute technical issues or other emergencies can request an extension from their instructor for MML homework via email.
2. Unless your instructor is provided with a reasonable explanation (severe illness, death in the family, etc.) for a late assignment submission or absence for a quiz/midterm, you will receive a grade of zero.
3. All students will have their lowest midterm grade dropped, and their lowest quiz grade dropped from final grade calculations.
4. None of the written assignment grades are dropped and no MML homework assignments will be dropped from final grade calculations.
5. Students who miss more than one quiz or midterm, with reasonable explanation, will have their remaining quiz/midterm grades weighted more heavily.
6. Students who will miss a midterm or quiz due to a university-sponsored event or athletics should provide their instructor with the official documentation in advance.

Midterm Grades

A satisfactory midterm grade will be assigned to all students with a grade of 70% or higher, based on a weighting of grades collected up to that point.

Campus-Wide Dates

01 11 16 First Day of Classes
01 18 16 Holiday (No Class)
02 19 16 Progress Reports Due
03 16 16 Withdrawal deadline: last day to withdraw with a grade of "W"
03 21 16 Spring Break week begins (no lectures)
04 25 16 Last lecture
04 28 16 Final Exam period begins
04 09 16 Grade submission deadline
04 10 16 Final grades posted

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
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.
- Put away any reading materials unrelated to the course.

Academic Dishonesty
All students are expected to comply with the Georgia Tech Honor Code (the honor code can be found at 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 an unapproved calculator, books, or any form of notes on tests.
- Copying directly from any source, including friends, classmates, tutors, Internet sources (including Wolfram Alpha), or a solutions manual.
- Allowing another person to copy your work.
- Taking a midterm or quiz using someone else's name, or having someone else take a test or quiz 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 quizzes or 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.
## 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](http://www.math.gatech.edu/course/math/2550).

<table>
<thead>
<tr>
<th>Week</th>
<th>Dates</th>
<th>Monday Lecture</th>
<th>Wednesday Lecture</th>
<th>Thursday No lecture</th>
<th>Friday Lecture</th>
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<tbody>
<tr>
<td>1</td>
<td>Jan 11 - 15</td>
<td>12.1, 12.2</td>
<td>12.3, 12.4</td>
<td>MML HW1 due</td>
<td>WS 1 (12.1 - 4)</td>
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<td>2</td>
<td>Jan 18 - 22</td>
<td>Holiday</td>
<td>12.5</td>
<td>MML HW2 due</td>
<td>WS 2 (12.5), Quiz 1</td>
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<td>3</td>
<td>Jan 25 - 29</td>
<td>12.6</td>
<td>13.1 - 2</td>
<td>MML HW3 due</td>
<td>WS 3 (12.6 - 13.2), WA 1 Due</td>
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<td>4</td>
<td>Feb 1 - 5</td>
<td>13.3</td>
<td>WS 4 (review)</td>
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<td>Midterm 1</td>
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<td>5</td>
<td>Feb 8 - 12</td>
<td>13.4</td>
<td>14.1</td>
<td>MML HW4 due</td>
<td>WS 5 (13.4,14.1), Quiz 2</td>
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<td>Feb 15 - 19</td>
<td>14.2</td>
<td>14.3</td>
<td>MML HW5 due</td>
<td>WS 6 (14.2 - 3), WA 2 Due</td>
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<td>Feb 22 - 26</td>
<td>14.4</td>
<td>WS 7 (review)</td>
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<td>Midterm 2</td>
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<td>Feb 29 - Mar 4</td>
<td>14.5</td>
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<td>MML HW6 due</td>
<td>WS 8 (14.5 - 6), Quiz 3</td>
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<td>Mar 7 - Mar 11</td>
<td>14.7</td>
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<td>MML HW7 due</td>
<td>WS 9 (14.7 - 8), WA 3 Due</td>
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<td>Mar 14 - Mar 18</td>
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<td>WS 10 (review)</td>
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<td>11</td>
<td>Mar 21 - Mar 25</td>
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<td>Spring Break</td>
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<td>12</td>
<td>Mar 28 – Apr 1</td>
<td>15.1, 15.2</td>
<td>15.3</td>
<td>MML HW8 due</td>
<td>WS 11 (15.1 - 3), Quiz 4</td>
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<td>15.5</td>
<td>MML HW9 due</td>
<td>WS 12 (15.4 - 5), WA 4 Due</td>
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<td>WS 13 (review)</td>
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<td>Apr 18 - Apr 22</td>
<td>15.7</td>
<td>15.8</td>
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<td>WS 14 (15.6 - 8), Quiz 5</td>
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<td>Apr 25 - Apr 29</td>
<td>Review</td>
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<td>17</td>
<td>May 2 – May 5</td>
<td>final exams</td>
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