

**University of Texas**  
**Math 408D Sequences, Series, and Multivariate Calculus**  
**Fall 2024**

**Professor** Dr. Theresa Martines

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**office** PMA 10.108

**Classroom/Time** RLP 0.130 MWF 10 am

**Office Hours** TH 8-9:30 am via Zoom or by appointment

**Textbook** *Calculus and Early Transcendentals*, Stewart, 9<sup>th</sup> edition

**Calculator** Only a four-function calculator will be allowed (no scientific calculator, no graphing calculator)

**Course Description**

The theory and applications of sequences and infinite series, including those involving functions of one variable, and an introduction to the theory and applications of differential and integral calculus of functions of several variables; subjects include methods of integration, parametric equations, sequences, infinite series, power series, functions of several variables, partial derivatives, and multiple integrals. Three lecture hours and two discussion hours a week for one semester. Only one of the following may be counted: Mathematics 403L, 408D, 408M. Prerequisite: Mathematics 408C, 408L, or 408S with a grade of at least C-.

**Course Objectives**

A student who has taken this course should be able to:

1. Apply the concepts of integration to evaluate definite, indefinite and improper integrals
2. Apply various techniques to solve differential equations
3. Apply concepts with parametric equations
4. Apply concepts with polar coordinates
5. Understand the concept of a sequence and be able to determine certain properties of the sequence
6. Determine the convergence/divergence of an indefinite series
7. Understand the concept of a power series representation of a function and be able to determine the Taylor or Maclaurin series representation for a given function, including its interval of convergence
8. Perform calculus operations on functions of several variables including limits, partial derivatives, directional derivatives, and multiple integrals.

**Course Grade Calculation**

<b>Grade will be determined by</b>	<b>Percent of Grade</b>
Average of homework	10%
Average of quizzes and in class assignments	15%
2 Exams (25% each)	50%
Final Exam	25%

**Final Grade Scale** A (100-90), B+ (89-88), B (87-80), C+ (79-78), C (77-70), D+ (69-68), D (67-60), F (59-0).

## Course Assessments

**Exams** All exams are taken in class without the use of notes or outside material. Multiple choice questions on exams will be graded based on the final answer ONLY, no partial credit will be given. Free response questions on quizzes and exams will be graded based on the final answer, the mathematical steps that get you to that answer, and the clarity with which you present those steps.

If you miss an exam for any reason this will be the exam that is dropped. If you miss an exam with a valid excuse (medical, emergency, etc.) please provide documentation to support your absence submitted through the Student Services Office as well as discuss the absence with the professor. This documentation and communication must be submitted within one week of the absence. Absences for emergencies must be documented in the very rare case that there are multiple missed exams for emergencies during the semester.

On exam days students must have their phones silenced and all alarms off. Students should only have something to write with at their desk. They must leave all phones, headphones, earbuds, notes, pencil cases, etc. in their bags and bags should be placed against the wall of the classroom. There will be NO food or drinks allowed at the student desks during exams.

**Quizzes** All quizzes will be taken during Tuesday Discussion sessions without the use of notes or outside material. There will be no makeup quizzes.

If you miss a quiz with a valid excuse (medical, emergency, etc.), you will be excused from that quiz. You must provide documentation to support your absence submitted through the Student Services Office as well as discuss the absence with the professor. This documentation and communication must be submitted within one week of the absence.

Free response questions on quizzes will be graded based on the final answer, the mathematical steps that get you to that answer, and the clarity with which you present those steps.

**Homework:** All homework assignments must be completed on time. No late homework will be accepted without documentation provided to me within one week of the absence. You must provide documentation to support your absence submitted through the Student Services Office as well as discuss the absence with the professor. This documentation and communication must be submitted within one week of the absence.

This course makes use of the web-based Quest content delivery and homework server system maintained by the College of Natural Sciences. Please go to <http://quest.cns.utexas.edu> to log in to the Quest system for this class. I will also assign practice problems from the textbook for students to complete on their own time, these will not be turned in or used in your final grade.

## Due Dates

Due Dates and specifics of homeworks and quizzes in Canvas follow a tentative schedule that will change when needed. Please be sure to check Canvas often for the most up to date information.

## Discussion Sessions

**Tuesday:** All students must attend discussion sessions each Tuesday to take a quiz covering the previous week's material.

**Thursday:** The TA will go over the answers to the quiz taken in the previous discussion as well as review any homework questions. Students with questions on the quiz or homework should attend this session to receive help.

## **Class Communication**

Any direct emails to the professor should include the student's name, EID, course name, and class time.

The professor will use Canvas Announcements to communicate information to the class when needed including changes to due dates. Please consider adjusting your settings in Canvas to send notifications of announcements for all timely information.

## **Scholastic Dishonesty**

Students who violate university rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from The University. Since such dishonesty harms the individual, all students, and the integrity of The University, policies on scholastic dishonesty will be strictly enforced. See: [http://deanofstudents.utexas.edu/sjs/acint\\_student.php](http://deanofstudents.utexas.edu/sjs/acint_student.php)

## **Disability & Access**

If you are a student with a disability, or think you may have a disability, and need accommodations please contact Disability and Access (D&A). You may refer to D&A's website for contact and more information: <https://community.utexas.edu/disability>.

If you are already registered with D&A, you must reach out to the professor to discuss your approved accommodations. All testing accommodations must be done through RegisterBlast and at the university Testing Center. It is the responsibility of the student to make and keep all appointments for testing as this is the only option to use testing accommodations.

## **Teaching All Learners**

It is my intent that students from all backgrounds and perspectives be well served by this course, that students' learning needs be addressed, and that the diversity that students bring to this class can be comfortably expressed and be viewed as a resource, strength, and benefit to all students. Please come to me with any concerns.

## **Religious Holidays**

If you are unable to participate in a required class activity because it conflicts with your religious traditions, please notify me in advance and I will make accommodations for you. Typically, I will ask you to complete the required work before the religious observance begins, if possible.

## **Title IX**

Title IX is a federal law that protects against sex and gender-based discrimination, sexual harassment, sexual assault, sexual misconduct, dating/domestic violence and stalking at federally funded educational institutions. The University of Texas at Austin is committed to fostering a learning and working environment free from discrimination in all its forms. For more information about reporting options and resources, visit <http://www.titleix.utexas.edu>.

## **Mental Health & Counseling**

To help with stress, study habits, crises, or any personal matters, please look for assistance at the Counseling and Mental Health Center on Campus [www.cmhc.utexas.edu](http://www.cmhc.utexas.edu).

## **University Health Services**

University Health Services is an on-campus medical facility providing high quality medical care and patient education to UT students. Services offered include general medicine, specialty clinics including the gynecology clinic, sports medicine, nutrition services, allergy, immunization and travel health, physical therapy, urgent care, a 24/7 nurse advice line, and lab and radiology services. <https://healthyhorns.utexas.edu>

## Student Emergency Services

Student Emergency Services in the Office of the Dean of Students helps students and their families during difficult or emergency situations. If you need to be absent from class due to a family emergency, medical or mental health concern, or academic difficulty due to crisis or an emergency situation, you can work with Student Emergency Services. SES will document your situation and notify your professors.

<https://deanofstudents.utexas.edu/emergency/>

## Important Dates

Labor Day (no classes) – Monday September 2

**Exam 1 – Monday September 30 during class time**

Last Day to Drop – October 28

**Exam 2 – Monday November 4**

Fall Break (no classes) – November 25-30

Last Day of Classes – December 9

**Final Exam – Monday December 16 10:30am – 12:30pm**

## Classroom/Lecture Rules

- Any student suspected of cheating on a graded assignment will receive a zero for the assignment and the incident will be reported to the university.
- You **will not** be permitted to share calculators during or after a quiz or exam. A cell phone, laptop or tablet will never be permitted as a calculator.
- No student will be allowed to start an exam or quiz after another class member has left the room.
- The use of any communication/electronic devices is disruptive. The use of these devices as well as reading outside material is prohibited during class. Any student using any of the above devices during class will be given one warning. If the behavior continues you will be asked to leave for the remainder of the class. (Note: students can use a tablet laid flat on the desk for notes)
- If you believe there has been a grading error, I will happily offer a re-grade if you submit it me a typewritten letter detailing the error along with the graded item in question. Such a request must be made within one week from the time the item was returned to the class.
- I will not respond to email requests for grade updates because of privacy concerns. Your grade will be available on Canvas and you are welcome to come to office hours at any time to discuss your grade.
- It is recommended that you attend all classes. Missing class will certainly have a negative impact on your performance in this course; however, will not be used directly in computing your final grade.
- If you miss class (excused or unexcused absence) it is your responsibility to catch up on the material presented in class. I suggest meeting with another student in class to copy the notes. If you have questions after you have reviewed the material presented during your absence, please see me during office hours as soon as possible so you do not fall behind in the course.

### Tentative Class Schedule

Week 1	Syllabus, Section 7.1, 7.2	Week 9	Sections 11.5, 11.6
Week 2	Section 7.3, 7.4	Week 10	Sections 11.8, 11.9
Week 3	Sections 7.8, 9.1, 9.2	Week 11	<b>Exam 2</b> Sections 11.10, 11.11
Week 4	Sections 9.3, 9.5	Week 12	Sections 14.1, 14.2, 14.3
Week 5	Section 10.1, 10.2, 10.3	Week 13	Sections 14.5, 15.1, 15.2, 15.3
Week 6	<b>Exam 1</b> Sections 10.4, 11.1	Week 14	Sections 15.6, 15.7, 15.8
Week 7	Sections 11.1, 11.2	Week 15	Review for Final
Week 8	Sections 11.3, 11.4		