# M408C Fall 2024: Syllabus and Lecture Plan

## Instructor Information

**Instructor:** Matias Delgadino
**Office hours:** Tuesday and Thursday, 1:30–2:30pm in PMA 10.160
**Contact:** matias.delgadino@utexas.edu (For math questions, please come to office hours.)

**Teaching Assistant:** Ryan J Wandsnider
**Office hours:** TBD
**Contact:** rjwandsnider@utexas.edu

## Course Meetings

- **Lectures:** Tuesdays and Thursdays, 3:30–4:45am in CPE 2.208.

- **Discussion Sections:**

    - 53755: Mondays and Wednesdays, 3:00–3:50pm in BUR 212.
    - 53760: Mondays and Wednesdays, 4:00–4:50pm in BUR 212.

## Resources

- **CalcLab:** CalcLab Website

- **Sanger Learning Center:** Sanger Learning Center Website

## Course Webpages

- **Public webpage:** https://zaytam.github.io/M408C.html

- **Canvas:** https://utexas.instructure.com/courses/1409954

# Course Description

M408C is the standard first-semester calculus course, directed at students in the natural sciences and engineering. The emphasis is on problem-solving, not the theory of analysis. Topics include algebraic, trigonometric, logarithmic, and exponential functions, their limits, continuity, derivatives, maxima and minima, integration, area under a curve, and volumes of revolution.

# Textbook and Notes

- **Textbook:** Stewart, *Calculus, Early Transcendentals*, 9th edition.

- **Lecture notes:** Available on the course website.

# Grades and Important Dates

- **Homework (15%):** 13 problem sets, one due each Friday by 7pm, submitted via Quest.

  The lowest three scores will be dropped.

  Late homework will not be accepted.

- **Midterms (60%):** Four midterms, with the lowest score dropped:

  - Midterm 1: Thursday, February 6
  - Midterm 2: Thursday, March 6
  - Midterm 3: Thursday, April 6
  - Midterm 4: Thursday, April 24

- **Final Exam (25%):** Monday, May 5 CPE 2.208 8-10 am.

- **Grade Scale:** The Grades will be assigned with respect to class performance.

- **Drop dates:**

# Policies and Services

- **Students with Disabilities:** The university is committed to creating an accessible and inclusive learning environment consistent with university policy and federal and state law. If you are a student with a disability, or think you may have a disability, and need acco- modations please contact Disability and Access (D&A). Please refer to D&As website for contact and more information: http://diversity.utexas.edu/disability/ If you are already registered with D&A , please deliver your Accommodation Letter to me as early as possible in the semester so we can discuss your approved accommo- dations and needs in this course. Students with disabilities must make arrangements

with the instructor or the UT Testing center 2 weeks before each exam. Failure to do so will result in a student forfeiting their accommodations..

- **Religious Holidays:** Notify the instructor at least two weeks in advance for accommodations.

- **Dean of Students:** The Office of the Dean of Students is committed to helping all students at the University of Texas at Austin reach their fullest potential. If there are circumstances or emergencies which are making it impossible for you to be successful, you should consider contacting the Dean of Students and the Student Emergency Services:

  https://deanofstudents.utexas.edu

  https://deanofstudents.utexas.edu/emergency

- **Counseling and Mental Health:** Another helpful resource is the Counseling and Mental Health Center which provides support through assessment and referral, group and individual counseling, psychiatry and well-being services: https://www.cmhc.utexas.edu.

- **Recordings:** The lectures and discussion sections will not be recorded

- **Honor Code:** Students at UT-Austin are expected to abide by the core values of the University and uphold academic integrity. Any suspected violations of the honor code will be investigated and reported to the University for further action.

## More about Quest.

- **What is Quest?**

  Homework assignments for this course will be generated via Quest from a data bank of questions developed specifically for the course. These questions are based, for most part, on ones in the text. Each question in the bank is an algorithm that produces many different versions of the same question, so is ideally adapted to producing individualized homework assignments and exams.

  At the heart of Quest is a computer program the takes the data bank and generates homework which students download from the web, work on, and then return the answers again using the web. These answers are checked by the computer, and students are then notified immediately of the correctness or incorrectness of your answers.

- **Quest instructional charge:**

  Quest requires a $25 charge per student for its use, which goes toward the maintenance and operation of the resource.

  After the 12th day of class, when you log into Quest you will be asked to pay via credit card on a secure payment site. You have the option to wait up to 30 days to pay while still continuing to use Quest for your assignments. If you are taking more than one course using Quest, you will not be charged more than $50/semester.

Quest provides mandatory instructional material for this course, just as does your textbook. For payment questions, please email quest.fees@cns.utexas.edu.

# Textbook Access

The textbook for this class is available through the Longhorn Textbook Access (LTA) program, a new initiative between UT Austin, The University Co-op and textbook publishers to significantly reduce the cost of digital course materials for students.

You are automatically opted into the program but can easily opt-out (and back in) via Canvas through the 12th class day. If you remain opted-in at the end of the 12th class day you will receive a bill through your What I Owe page and have until the end of the 18th class day to pay and retain access. If you do not pay by the 18th class day, you will lose access to the materials after the 20th class day and your charge will be removed.

More information about the LTA program is available at https://www.universitycoop.com/longhorn-textbook-access

# Flag Statement

This course carries the Quantitative Reasoning flag. Quantitative Reasoning courses are designed to equip you with skills that are necessary for understanding the types of quantitative arguments you will regularly encounter in your adult and professional life. You should expect a substantial portion of your grade to come from your use of quantitative skills to analyze real-world problems.

This course may be used to fulfill the math component of the university core curriculum and addresses the following three core objectives established by the Texas Higher Education Coordinating Board: communication skills, critical thinking skills, and empirical and quantitative skills.

| Date | Subject | Reading | p-set due |
|---|---|---|---|
| T January 14 | Introduction | | |
| Th January 16 | Exponentials | 1.4-1.4 | |
| F January 17 | | | p-set 0 (not graded) |
| T January 21 | Logarithms | 1.5 | |
| Th January 23 | Limits | 2.1-2.2 | |
| F January 24 | | | p-set 1 |
| T January 28 | Limit Laws | 2.3 | |
| Th January 30 | Continuity-Limit at Infinity | 2.5-2.6 | |
| F January 31 | | | p-set 2 |
| T February 4 | The derivative of a function | 2.7-2.8 | |
| Th February 6 | **Midterm 1** | | |
| F February 7 | | | p-set 3 |
| T February 11 | Derivatives of polynomials and product rules | 3.1-3.2 | |
| Th February 13 | Derivatives of trigonometric functions | 3.2-3.3 | |
| F February 14 | | | p-set 4 |
| T February 18 | The chain rule- Implicit Differentiation | 3.4-3.5 | |
| Th February 20 | Derivatives of logarithms | 3.5-3.6 | |
| F February 21 | | | p-set 5 |
| T February 25 | Exponential growth and decay | 3.8-3.9 | |
| Th February 27 | Related rates &Linear approximation | 3.9-3.10 | |
| F February 28 | | | p-set 6 |
| T March 4 | Maximum and Minimum values | 4.1, 4.3 | |
| Th March 6 | **Midterm 2** | | |
| F March 7 | | | p-set 7 |
| T March 11 | The second derivative test and MVT | 4.2-4.3 | |
| Th March 13 | Summary of curve sketching | 4.5 | |
| F March 14 | | | p-set 8 |
| T March 18 | Spring break | | |
| Th March 20 | Spring break | | |
| F March 21 | Spring break | | |
| T March 25 | L'Hospital's theorem | 4.4 | |
| Th March 27 | Optimisation problems | 4.7 | |
| F March 28 | | | p-set 9 |
| T April 1 | Antiderivatives | 4.9 | |
| Th April 3 | **Midterm 3** | | |
| F April 7 | | | p-set 10 |
| T April 8 | Areas and the definite integral | 5.1 | |
| Th April 10 | The fundamental theorem of calculus | 5.2-5.3 | |
| F April 11 | | | p-set 11 |
| T April 15 | Net Change & The substitution rule | 5.4-5.5 | |
| Th April 17 | Areas between curves and Volumes | 6.1-6.2 | |
| F April 18 | | | p-set 12 |
| T April 22 | Volumes of revolution and Averages | 6.2, 6.5 | |
| Th April 24 | **Midterm 4** | | |
| F April 25 | 5 | | p-set 13 |
| M May 5 | Final exam | | |