Math 1190.009: Business Calculus

Instructor Information

Name: Marc Grether
Pronouns: He/Him
Office Location: GAB 416
Office Hours: Tutoring/Office Hours Tues./Thurs.: 12:30-2:15. I am also often available for appointments at other times. Email me to schedule times.

Email: grether@unt.edu (note: there is no "my" in this email address).
Meeting location and time: Tues./Thurs. 9:30-10:50 in MATT 312.
Hi Y'all. I've taught at UNT since 2001 and am a Principal Lecturer in the Department of Mathematics. Please call me Mr. Grether. I received my Master of Science in Mathematics from Texas A&M. You can find more about me in the Meet Your Instructor page in Canvas.

How to Communicate with Your Instructor

Please reach out to me if you have questions, need help, or want to let me know about something that affects your engagement with the class. I typically respond in one (1) business day, during business hours. A message received after business hours is considered received the next business day. The best way to reach me is via email at grether@unt.edu. I will work hard to respond as quickly as possible to emails, but it may occasionally take me up to a business day to respond. Though I might reply to an email late at night or on the weekend, you should not expect quick responses outside of the hours of 8am -5pm.

Course Description

Differential and integral calculus with emphasis on applications to business.

Course Structure

This is a 15-week, face-to-face course that will cover Units 1-4. There will be three midterm exams, plus a comprehensive final exam.

Course Prerequisites or Other Restrictions

Prerequisite(s): Two years of high school algebra and consent of department or MATH 1100 or MATH 1180 with a grade of C or better.

Course Learning Objectives

Upon successful completion of this course, students will:

1. Apply calculus to solve business, economics, and social sciences problems.

2. Apply appropriate differentiation techniques to obtain derivatives of various functions, including logarithmic and exponential functions.

3. Solve optimization problems with emphasis on business and social sciences applications.

4. Determine appropriate technique(s) of integration.

5. Integrate functions using the method of integration by parts or substitution, as appropriate.

6. Solve business, economics, and social sciences applications problems using integration techniques.In this course, you will be evaluated for meeting the following 3 Core Curriculum requirements - Empirical and Quantitative Skills, Critical Thinking, and Communication. These skills are embedded throughout the course and the assessment of them will occur using distinct criteria from your grades.

ADA Policy

The University of North Texas makes reasonable accommodations for students with disabilities. To request accommodations, you must first register with the Office of Disability Access (ODA) by completing an application for services and providing documentation to verify your eligibility each semester. Once your eligibility is confirmed, you may request your letter of accommodation. ODA will then email your faculty a letter of reasonable accommodation, initiating a private discussion about your specific needs in the course.
You can request accommodations at any time, but it's important to provide ODA notice to your faculty as early as possible in the semester to avoid delays in implementation. Keep in mind that you must obtain a new letter of accommodation for each semester and meet with each faculty member before accommodations can be implemented in each class. You are strongly encouraged to meet with faculty regarding your accommodations during office hours or by appointment. Faculty have the authority to ask you to discuss your letter during their designated office hours to protect your privacy. For more information and to access resources that can support your needs, refer to the Office of Disability Access website (https://studentaffairs.unt.edu/office-disability-access).

Materials

Homework assignments will require accessing Knewton or Canvas "quizzes" through your UNT Canvas account. Log in to Canvas at https://unt.instructure.com, read through "Getting started with Knewton". Additional resources are listed in Canvas. You will have to purchase access to Knewton or continue access if you have used it for Math 1180 or 1190 and purchased the 2-year access within the last two years. This can be done through the Barnes and Noble link or other sellers. You can get two weeks of access for free for up to two weeks. For more information about your homework, please read the Homework section. The homework assignments account for 30% of your grade.

No textbook is required.

Course Technology & Skills

This course has digital components. To fully participate in this class, students will need internet access to reference content on the Canvas Learning Management System.

Minimum Technology Requirements and required skills

- A calculator (see Calculator Policy)
- Proficiency in using Canvas
- Proficiency in using your calculator

Calculator Policy

Many calculators will be sufficient for the exams on this class. Among good options are the TI-36X,TI-30XIIS, TI-83 or TI-84 (or similar Casio, other manufacturer's calculators). Examples of calculators not allowed: TI-Nspires, TI 92's, TI 89's. Any other utility with alphanumeric/CAS capabilities or the ability to connect to the internet, such as a smartphone.

Knewton is Required

The homework and some course content will be delivered in Knewton, which must be accessed through via Canvas. You will not need a Knerd link as the access is provided directly in Canvas. Note: Mac users may find it easiest to use a browser other than Safari.

Course Evaluation

Homework	30%
Midterm Exams	50% total (Average of all exams)
Final Exam	20%

Grade Assignment:

A: [90%,); B: [80%, 90%); C: [70%, 80%); D: [60%, 70%); F: [0%, 60%).

Policies/information directly affecting grades/grading

Homework:

The online homework is worth 30% of your overall course grade. Each assignment is equally weighted. Most homework will use an online software program called Knewton, though some will be directly in Canvas.

What is Knewton? Knewton is a mastery-based adaptive software and is designed to judge your ability to complete your assignments. You will be able to proceed through Knewton much more quickly if you study and review your notes before starting the assignments. For best results, read through “Getting Started with Knewton" located in Canvas before your first assignment.

Why do Homework? A purpose of homework is to provide you with sufficient opportunities to learn and practice the new content you are learning. Knewton is adaptive and mastery based, which means that the software will provide each student with the sufficient number of questions to judge whether each topics learning objectives have been mastered. This means a student who has prepared well before the assignment may have very short assignments, while a less well prepared student may take many more questions on each assignment. Again, the more you prepare before starting to attempt the exercises, the less work you will have. For more tips on how to get the most out of the homework assignments, read through “Getting Started with Knewton"

Get the Most out of Homework

- You should have a dedicated notebook for your math homework. Carefully write out your work, especially noting the questions with which you struggled. This should form a substantial part of your review material prior to the exams.
- Homework is one piece of your learning process in this course, but successful completion of the homework assignments is not sufficient preparation for exams. You must be able to work the exercises on your own, without any aids on exams.

Where is Knewton?

You access your Knewton powered homework in one of two ways through Canvas, they are:

1. At the Syllabus portal. Every assignment for your course is accessible through the Syllabus portal. This portal is very helpful because it lists all assignments in due date order; or

2. At the content module. Select the Modules tab along the left-hand navigation of Canvas. From the Modules select Module 1. The Knewton assignments have a paper and pencil icon to their left.

When are Knewton Homework Assignments due?

Assignment due dates are listed on the syllabus link in Canvas. Knewton assignments are always due at 11:59 PM. To successfully complete the assignments, you must carefully manage your time. I recommend that you plan to complete them well ahead of the due date. Late homework will not be accepted. At the end of the term, two (2) lowest grades will be dropped from the calculation of the homework average. In Canvas, the two dropped grades will not be correctly calculated until the very end of the semester.

AI is not allowed on exams. There are many avenues you can use to get help on homework - my office hours, email, the Math Lab, ... - all of which should be able to help you in the process of learning the

material. AI is unlikely to be beneficial to you in learning math and sometimes will produce errors that are difficult to decode.

Midterm Exams

Three in-class exams are planned for this semester. Keep a record of all your scores. Be sure to review your exam upon receiving it. Check your written exam grade with the grade posted online to ensure that they are the same. The midterm exams account for a total of 50% of the overall course grade. The midterms will be made up of multiple choice problems with some multiple choice. Tentative dates are listed on the attached calendar. The final exam is comprehensive.

Final Exam:

The final exam is on **Thursday, May 7th from 7:30AM to 9:30AM.**The final exam is comprehensive and is 20% of the course grade (Full list of Final Exam dates).The format of the final exam will be the same as the format of the midterm exams, except longer.

Examination Policy

Exams are closed book, on paper and done in class during the time listed on the syllabus unless an announcement of a change is made in class. I work hard to structure my course in such a way that balances the time necessary for students to learn the necessary content with the need to have regular midterm exams. As such, students are expected to take the exams on the given day. In the event of a schedule conflict with a university function, dental/physician s appointment, wedding, formal, etc., the student must take the test early if at all possible. I request a week's notice for this accommodation via email. In the event that an unavoidable conflict/illness comes up, reach out to me as soon as you can. If a student does not take a scheduled exam, a zero may be recorded for that exam. If your final exam score is higher than one of your midterm exam scores, then that midterm exam grade will be replaced with final exam grade. If you receive a zero for academic dishonesty on an exam, the final exam score will NOT replace that zero.

Assignment Policy

All homework assignments are due online through Canvas either directly in Canvas or via My Labs Math.

Late Work

Due dates are expected to be followed and are intended to allow you time to complete the course on time. As such, I will rarely accept late work. If exceptional circumstances occur, please reach out to me as soon as possible.

Instructor Responsibilities and Feedback

My goal in this course is to provide an environment conducive to your learning. I will work hard to be available outside of class during my tutoring/office hours, via email or via Zoom. I welcome questions about any portion of the course and am happy to clarify any issues if they come up. Most homework assignments are automatically graded and you can review your work on the Canvas assignments the day after they are due. I make it a priority to grade exams quickly, but my past experience suggests that this can take me up to two weeks to get them back to you.

Drop/Withdrawal Policy

If the student is unable to complete this course, it is his/her responsibility to formally withdraw from the course. You can find more details about dropping the course at this link.

If the student does not properly withdraw from the course but stops attending, the student will receive a performance grade, usually an F.

If you are considering dropping, it is strongly recommended that you discuss the matter with me as soon as possible.

Incomplete

Beginning April 11th, a student that qualifies may request a grade of "I", incomplete. An "I" is a non-punitive grade given only if ALL three of the following criteria are satisfied. They are:

- The student is passing the course;
- The student has a justifiable (and verifiable) reason why the work cannot be completed as scheduled; and
- The student arranges with the instructor to complete the work within one academic year.

Syllabus Change Policy

This syllabus is subject to change. Any changes will be announced in class and the updated syllabus will be posted in Canvas.

Attendance and Participation

Research has shown that students who attend class are more likely to be successful. You should attend every class and participate fully unless you have a university excused absence such as active military service, a religious holy day, or an official university function as stated in the Student Attendance and Authorized Absences Policy (PDF). If you cannot attend a class due to an emergency, please let me know. Your safety and well-being are important to me. Even if you are unable to attend, students are responsible for all information given in class.

Emergency Notification and Procedures

Students will be notified by Eagle Alert if there is a campus closing that will impact a class. The calendar is subject to change: see the Emergency Notifications and Procedures Policy

Classroom Etiquette:

Appropriate behavior is expected of all students taking this course. Arrive to class promptly and do not leave until the scheduled ending time of the class. If you must arrive late or leave early, please do so as discreetly as possible and take a seat near the door. Turn off all non-medical electronic devices such as pagers, cell phones, laptops, etc. Take off your headphones. Do not play on your phone or work on unrelated assignments during class. I reserve the right to ask disruptive students (texters, those using a computer for non-class related work, etc.) to leave class. You will be considered absent if you are asked to leave. Again, it is considered a serious violation of your responsibilities as a student to be on a

computer or your mobile device during class. It distracts you, lowers your performance in class and does the same for those around you. Please read the New Yorker article I've posted on Canvas for more information about this. Students misusing electronic devices for non-academic reasons distract others and may be asked to leave. See also #8 on the 10 academic rights that is linked here.

Recommended Steps to Succeed

I hope this advice will be helpful for you. It consists of my observations in the time I have been teaching. I have observed two character traits common to successful students. The traits are maturity and time commitment. Learning requires working when you don't want to – that requires maturity. Learning also requires consistent and diligent dedication of time.

Some additional specific steps:

- Learning math requires a great deal of time and honest effort along with regular and consistent work.
- After class review your notes. If you have questions, ask immediately.
- Actively read through all recommended readings.
- Complete the Exam Reviews prior to each exam.
- Form a study group with your classmates. Create online groups.
- Make use of the tutoring options available to you: the Math Lab, the Learning Center, and your instructor's tutoring hours.
- The Learning Center offers several tutoring options: Drop-In Tutoring, One-on-One Tutoring, Group Tutoring and Online Tutoring. Additional links for places you can get help at UNT is on the Academic Support and Student Services page in the Canvas Start Here module.
- Work on the assignments consistently well ahead of due date. Waiting until the last minute is a horrible idea.
- Math is not a spectator sport. You must try the problems, finish problems, ask questions, correct your mistakes, put concepts in your own words, and practice, practice, practice. You learn math by doing, not by watching others do math.
- Contact your instructor immediately if you are having problems.

One last thought: As an adult, you need to **self-advocate**. If you are having problems, you are expected to seek help. Most of you, at some point in your college career you will run into problems and need to ask for help – don't wait, reach out as soon as you realize you have an issue.

Supporting Your Success and Creating an Inclusive Learning Environment

Every student in this class should have the right to learn and engage within an environment of respect and courtesy from others. We will discuss our classroom's habits of engagement and I also encourage you to review UNT's student code of conduct so that we can all start with the same baseline civility understanding (Code of Student Conduct).

Summary of key dates: Review the registrar's Academic Calendar & Key Dates

Academic Integrity Policy

Cheating on tests, quizzes or final exams is a serious breach of academic standards and will be punished severely and generally result in a student failing the course. All work done on exams and quizzes must represent only the student's own work, unless otherwise stated in the directions. According to UNT Policy 06.003, Student Academic Integrity, academic dishonesty occurs when students engage in behaviors including, but not limited to cheating, fabrication, facilitating academic dishonesty, forgery, plagiarism, and sabotage. See Academic Integrity for details on academic integrity policies at UNT.

Tentative Weekly Calendar

Week 1

Tuesday 1/13/2026 Intro, Knewton, 1.0: Rational Inequalities: Sign charts and factoring,

Thursday 1/15/2026 1.1: Idea of a Limit and Limit Rules, 1.2: Limit Rules

Week 2

Tuesday 1/20/2026 1.3: Continuity

Thursday 1/22/2026 1.4: Limits at Infinity and Infinite limits

Week 3

Tuesday 1/27/2026 1.5: Average Rate of Change and Tangent Lines by Graphing

Thursday 1/29/2026 1.5: Average Rate of Change and Tangent Lines by Graphing cont., 1.6: Definition of the derivative

Week 4

Tuesday 2/3/2026 1.6: Definition of the derivative cont., 2.1: Constant, Power, Sum and Difference Rules

Thursday 2/5/2026 2.1: Constant, Power, Sum and Difference Rules cont.

Week 5

Tuesday 2/10/2026 Review

Thursday 2/12/2026 Exam 1

Week 6

Tuesday 2/17/2026 2.2: Product and Quotient Rules

Thursday 2/19/2026 2.3: Chain Rule

Week 7

Tuesday 2/24/2026 2.4: Derivatives of Exponential and Logarithmic Functions, 3.1: Marginal Applications to Business

Thursday 2/26/2026 3.2: Elasticity of Demand

Week 8

Tuesday 3/3/2026 3.3: First Derivative Test and Graphing

Thursday 3/5/2026 3.4: The Second Derivative

Week 9

Tuesday 3/17/2026 3.5: Absolute Extrema

Thursday 3/19/2026 3.6: Optimization

Week 10

Tuesday 3/24/2026 Review

Thursday 3/26/2026 Exam 2

Week 11

Tuesday 3/31/2026 4.1: Antiderivatives

Thursday 4/2/2026 4.2: Integration by Substitution, 4.3: The Area Question

Week 12

Tuesday 4/7/2026 4.3: The Area Question cont., 4.4: Definite Integrals and Rules for Definite Integrals

Thursday 4/9/2026 4.4: Definite Integrals and Rules for Definite Integrals cont., 4.5: Fundamental Theorem of Calculus

Week 13

Tuesday 4/14/2026 4.5: Fundamental Theorem of Calculus cont., 4.6: Area between Curves; Gini index

Thursday 4/16/2026 4.6: Area between Curves; Gini index cont., 4.7: Applications of Integration

Week 14

Tuesday 4/21/2026 4.7: Applications of Integration cont.

Thursday 4/23/2026 Review

Week 15

Tuesday 4/28/2026 Exam 3

Thursday 4/30/2026 Review

Your Final Exam is on **Thursday, May 7th from 7:30AM to 9:30AM**. It is required, comprehensive and worth at least 20% of your overall grade