MATH 2413 Calculus I
The University of Texas at Tyler, Fall 2024

Instructor: Dr. Ivan Ramirez-Zuniga
Email: iramirezzuniga@uttyler.edu
Office: RBN 4005
Website: All materials will be posted on Canvas

Time and Place:

- Section 003: MoWeFr 10:30 am - 11:45 am at RBN 4024.

- Section 004: MoWeFr 1:25 pm - 2:40 pm at RBN 4027.

Office Hours: Monday 3:00 pm - 4:00 pm, Wednesday and Friday 9:00 am -10:00 am, or request an appointment by email (at least two days in advance).

Preferred method of communication: My preferred method of communication is by email. Please start your emails with a greeting, followed by your full name, course and section.

Textbook: The text for this course is Calculus Volume 1, by OpenStax. This is an open source textbook. The online edition is available at http://www.openstax.org/details/books/calculus-volume-1/. Print copies can be purchased at a reasonable cost from their website.

Course description: A study of functions, limits, continuity, differentiation of algebraic and trigonometric functions, applications of the derivative, definite and indefinite integrals with applications. The goal is to prepare you to make use of calculus as a practical problem-solving tool.

Course prerequisites: Satisfy any of the following:

- C or better in MATH 2312 (or equivalent);

- C or better in MATH 1316 (or equivalent);

- Satisfactory score on ACT, SAT, THEA, or departmental trigonometry test.

Student Learning Outcomes: Upon completion of this course, students should be able to do the following:

- Discuss solutions to the tangent and area problems involving calculus concepts of limits, derivatives, and integrals.

- Use graphs of algebraic and transcendental functions to determine limits, continuity, and differentiability at a point.

- Determine whether a function is continuous and/or differentiable at a point using limits.

- Apply differentiation rules to differentiate algebraic and transcendental functions.

- Choose appropriate calculus concepts and techniques to provide mathematical models of real-world situations and determine solutions to applied problems.

- Compute definite integrals using the Fundamental Theorem of Calculus.

- Recognize and discuss the relationship between derivatives and integrals using the Fundamental Theorem of Calculus.

Grading procedure:

- Three midterm exams 45% (15% each).

- Final exam (cumulative) 25%

- Quizzes 20%

- Homework 10%

Grading scale: A:90-100%, B: 80-89%, C: 70-79%, D: 60−69%, F:<60%.

Quizzes: There will be weekly **quizzes every Friday** (as shown in the tentative schedule below) unless otherwise announced by your professor in the previous lecture. **Your lowest two quizzes will be dropped** at the end of the semester. Make-up quizzes will not be offered if the student fails to notify the professor before the scheduled quiz is missed. If you know that you will have to miss a quiz for a legitimate reason (medical emergency, athletic commitment, religious observance, etc.), you must notify the professor in advance to schedule a make-up quiz before the following class. Absolutely no make-up quizzes will be given after the class following a scheduled quiz. Missed quizzes that are not made up before the following class will earn a grade of zero.

Homework: The homework in this course is a **learning tool**. Its primary purpose is to give you the opportunity to practice important methods and **to learn**. Very few students can master this material without plenty of practice. If you look up solutions online without first giving yourself the chance to think and struggle with each question, you may earn the homework points, but you will miss out on the opportunity to truly learn and understand the topics covered in the homework. Please **feel free to come ask me questions about homework** and other course material during office hours or to contact me to schedule alternative appointments. **Your questions are always welcome**.

Homework will be **assigned via the online platform WeBWorK**. Additional information on logging into and using WeBWorK will be available on Canvas. A new homework assignment will become available on WeBWorK after each class. It is your responsibility to be aware of the due date, which will be posted in Canvas and on WeBWorK. The WeBWorK system provides you with instant feedback on your answers, as well as a number of attempts to complete most problems. You are required to successfully complete all assigned problems on WeBWorK. **Late homework will NOT be accepted and there will be no extensions or additional attempts. If you are having issues with a particular problem, make sure to visit my office hours before you exhaust all your attempts**.

Make-up policy: Make-ups for documented absences that are required as part of a UT Tyler obligation (e.g. athletes participating in an event, students participating in a debate contest, etc.) or for religious observation will be granted. **For all make-ups of this type, prior notification of at least one week and documentation are required.** Other make-ups are granted only in extreme cases and at the sole discretion of the instructor. Valid documentation, such as a medical note from a health professional (dated within 72 hours of the missed evaluation) must be provided to be eligible for the make-up evaluation. Consider visiting the Health Clinic on Campus for such a request. To make an appointment call (903) 939-7870. It is the responsibility of the student to communicate with me promptly and regularly until arrangements for the missed work have been established. If this criterion is not met, make-up evaluation won't be granted.

Leaving early for a break is NOT grounds for a make-up, so please make your travel plans accordingly. In almost all cases, missed quizzes will be assigned a 0. **Keep in mind that the 2 lowest quizzes will be dropped at the end of the semester.**

Attendance: Attendance is **mandatory**. You are expected to attend to class on time and prepared. Students are responsible for all announcements made during lecture.

Student Resources:

- Canvas 101: To learn how to use Canvas visit: https://www.uttyler.edu/canvas/

- The Mathematics Learning Center (MLC), RBN 4021, is an open access computer lab for math students. There are tutors on duty for several hours each day to assist students who are enrolled in early-career courses. For more information about the MLC including the tutoring schedule visit: https://www.uttyler.edu/academics/colleges-schools/arts-sciences/departments/mathematics/math-learning-center.

- The UT Tyler PASS Tutoring Center, located in LIB 401, also offers free tutoring for early-career courses, and the walk-in (Zoom) hours are Monday - Thursday 12 - 10 pm, Friday 11 am - 4 pm, and Sunday 4 - 8 pm. There are also PASS tutors specifically for Calculus I. For more information including the tutoring schedule visit: https://www.uttyler.edu/academics/success-services/tutoring/ for the PASS tutoring schedule.

- Upswing (Online Tutoring Service) Online tutoring for undergraduate UT Tyler courses is available 24 hours per day, 7 days per week. Through Upswing, an online tutoring platform, students can connect with professional tutors without having to be present on campus. Upswing services are free to currently enrolled, undergraduate UT Tyler students. For more information about Upswing visit https://www.uttyler.edu/academics/success-services/tutoring/online/

Calculators: The use of **calculators** and other electronic devices, including **cell phones**, during exams or quizzes is strictly **prohibited**, so study accordingly.

Cellphones and electronic devices: Cellphones are not permitted during class. At all times cellphones must be silenced and must be put away.

Artificial Intelligence Statement: UT Tyler is committed to exploring and using artificial intelligence (AI) tools as appropriate for the discipline and task undertaken. We encourage discussing AI tools' ethical, societal, philosophical, and disciplinary implications. All uses of AI should be acknowledged as this aligns with our commitment to honor and integrity, as noted in UT Tyler's Honor Code. Faculty and students must not use protected information, data, or copyrighted materials when using any AI tool. Additionally, users should be aware that AI tools rely on predictive models to generate content that may appear correct but is sometimes shown to be incomplete, inaccurate, taken without attribution from other sources, and/or biased. Consequently, an AI tool should not be considered a substitute for traditional approaches to research. You are ultimately responsible for the quality and content of the information you submit. Misusing AI tools that violate the guidelines specified for this course (see below) is considered a breach of academic integrity. The student will be subject to disciplinary actions as outlined in UT Tyler's Academic Integrity Policy.

For this course, **the use of AI tools is permitted for homework assignments only, but it is important to understand that you do so at your own risk**. While AI may provide correct answers, relying solely on these tools can **defeat the purpose of homework as a learning tool**. Homework is designed to help you understand and apply the material, which is essential for your success in this course.

If you merely copy answers from AI without fully engaging with the problems, **you may find yourself unprepared for in-class evaluations, where NO electronic devices, including AI tools, will be allowed**. Ultimately, this approach could negatively impact your performance on exams and your overall understanding of the subject.

UT Tyler a Tobacco-Free University: All forms of tobacco will not be permitted on the UT Tyler main campus, branch campuses, and any property owned by UT Tyler. This applies to all members of the University community, including students, faculty, staff, University affiliates, contractors, and visitors. Forms of tobacco not permitted include cigarettes, cigars, pipes, water pipes (hookah), electronic cigarettes (vaping), smokeless tobacco, snuff, chewing tobacco, and all other tobacco products. There are several cessation programs available to students looking to quit smoking, including counseling, quitlines, and group support. For more information on cessation programs please visit https://www.uttyler.edu/offices/human-resources/wellness/tobacco-cessation/.

Academic Integrity: Your work must be your own. Violations will be processed according to the established guidelines of the department, college, and university. Violations of academic integrity include, but are not limited to, cheating, fabrication, or plagiarizing. A range of academic sanctions may be taken against a student who engages in academic dishonesty.

Accessibility: The Department of Mathematics at UT Tyler offers accommodations to students with learning, physical, and/or psychological disabilities. If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor and the Student Accessibility and Resources (SAR) as early as possible in the term. SAR will verify your disability and determine reasonable accommodations for this course. You can find more information in their website https://www.uttyler.edu/academics/success-services/disability-services/.
Take into account that once an application and supporting documentation is received, the SAR registration process may take 5-7 business days to complete. It is the student's responsibility to apply for and obtain accommodations in a reasonable time frame within the semester. No accommodation reviews will be completed during the final three weeks of the current semester unless the condition is temporary or newly diagnosed.

Policies: See https://www.uttyler.edu/offices/academic-affairs/files/syllabus-information.pdf for these and other important University policies including: UT Tyler Honor code, student rights and responsibilities, campus carry, UT Tyler a tobacco-free university, grade replacement and forgiveness, state-mandated course drop policy, student accessibility and resources, student absence for university-sponsored events, social security and FERPA, emergency exits and evacuation, and student standards of academic conduct.

Important Dates: To find these and other important dates visit the University academic calendar at: https://www.uttyler.edu/schedule/files/2024-2025/academic-calendar-2024-2025-main-20240724.pdf.

- September 9th. Census date: Date to withdraw without penalty, grade replacement deadline.

- November 4th. Last day to withdraw from one or more courses with a W.

- Final Exam. Group 03 December 9th, 10:15 am-12:15 pm.
  Group 04 December 9th, 12:30 pm - 2:30 pm.

Schedule: The following is an approximate lecture schedule, including dates for midterms and quizzes. This schedule is subject to change if necessary.

Date	Section and Topic	Notes	Date	Section and Topic	Notes
Mo 08/26	Course Intro / Ch1 Fun		We 10/23	4.9 Newton's Method	
We 08/28	Ch1 Fun and Graphs		Fr 10/25	4.10 Antiderivatives	**Quiz 8**
Fr 08/30	Ch1 Fun and Graphs		**Mo 10/28**	**Midterm 2**	
Mo 09/02	**No Class**	**Labor Day**	We 10/30	5.1 Approx Areas	
We 09/04	2.2 Lim of Fun		Fr 11/01	5.2 The Def Integral	**Quiz 9**
Fr 09/06	2.3 Lim Laws	**Quiz 1**	Mo 11/04	5.3 The FTC	
Mo 09/09	2.4 Continuity		We 11/06	5.4 Integ Form	
We 09/11	4.6 Limits Inf and Asymp		Fr 11/08	5.5 Substitution	**Quiz 10**
Fr 09/13	3.1 Def Deriv	**Quiz 2**	Mo 11/11	5.6 Int Exp and Log	
Mo 09/16	3.2 Deriv as Fun		We 11/13	5.7 Int inverse trig	
We 09/18	3.3 Diff Rules		Fr 11/15	6.1 Areas btw curves	**Quiz 11**
Fr 09/20	3.4 Deriv as Rates	**Quiz 3**	Mo 11/18	6.7 Integ Exp/Log fun	
Mo 09/23	**Midterm 1**		We 11/20	6.8 Exp growth/decay	
We 09/25	3.5 Deriv Trig fun		Fr 11/22	**Midterm 3**	
Fr 09/27	3.6 Chain Rule	**Quiz 4**	Mo 11/25	**No Class**	**Thnxgvn Break**
Mo 09/30	3.7 Deriv Inv Fun		We 11/27	**No Class**	**Thnxgvn Break**
We 10/02	3.8 Impl Diff		Fr 11/29	**No Class**	**Thnxgvn Break**
Fr 10/04	3.9 Deriv Exp-Log Fun	**Quiz 5**	Mo 12/02	Review	
Mo 10/07	4.1 Rel Rates		We 12/04	Review	
We 10/09	4.2 Lin Approx & Diff		Fr 12/06	Review	
Fr 10/11	4.3 Max & Min	**Quiz 6**	Mo 12/09	**Final Exam**	Comprehensive
Mo 10/14	4.4 Mean Value Theorem				
We 10/16	4.5 Derv Shape of a Graph				
Fr 10/18	4.7 Appl Optim Prob	**Quiz 7**			
Mo 10/21	4.8 L'Hopital's Rule				