



WACO, TEXAS

**COURSE SYLLABUS
AND
INSTRUCTOR PLAN**

TERI BARNES

CALCULUS I

MATH 2413 Section W081

This is an Online 16 Week Course

SPRING 2026

"AN EQUAL OPPORTUNITY INSTITUTION"

Course Description:

Limits and continuity; the Fundamental Theorem of Calculus; definition of the derivative of a function and techniques of differentiation; applications of the derivative to maximizing or minimizing a function; the chain rule, mean value theorem, and rate of change problems; curve sketching; definite and indefinite integration of algebraic, trigonometric, and transcendental functions, with an application to calculation of areas

Semester Hours 4 (4 lec)

Prerequisites and/or Corequisites:

Prerequisite: MATH 2412 Pre-Calculus Math (4 SCH version) or equivalent preparation

Corequisite: None

Course Notes and Instructor Recommendations:

This course has a major component (MyMathLab) that requires a good working knowledge of the computer. Online access is needed at a speed that will facilitate streaming video and downloading of materials. Video lectures and problem solving will be provided. MyMathLab is the online component that will house the course information. All homework and testing will take place in this environment.

Instructor Information:

Instructor Name:	Teri Barnes
MCC E-mail:	tbarnes@mclennan.edu
Office Phone Number:	254 299-8880
Office Location:	MATH 210
Office Hours:	To Be Announced

CONFERENCE TIME FOR STUDENTS

Tuesday: 7:00-8:00 am Zoom by Request

12:00-3:00 pm

Thursday: 7:00-8:00 am

Required Text & Materials: (No Hard Copy Text Required)

This course is being offered as Inclusive Access—this means you do not purchase a book. The electronic course information is included in tuition payments.



TI 83/84 Graphing Calculator

MCC Bookstore Website: <http://www.mclennan.edu/bookstore/>

Methods of Teaching and Learning:

Lectures and problem solving will be provided. MyMathLab is the online component that will house the course information. Lecture notes, reference materials, and videos are available there as well.

Course Objectives and/or Competencies

Upon completion of the course, the student will be able to:

- Develop solutions for tangent and area problems using the concepts of limits, derivatives, and integrals.
- Draw graphs of algebraic and transcendental functions considering limits, continuity, and differentiability at a point.

- Determine whether a function is continuous and/or differentiable at a point using limits.
- Use differentiation rules to differentiate algebraic and transcendental functions.
- Identify appropriate calculus concepts and techniques to provide mathematical models of real-world situations and determine solutions to applied problems.
- Evaluate definite integrals using the Fundamental Theorem of Calculus.
- Articulate the relationship between derivatives and integrals using the Fundamental Theorem of Calculus.

Course Attendance/Participation Guidelines:

If a student is not in attendance in accordance with the policies/guidelines of the class as outlined in the course syllabus as of the course census date, faculty are required to drop students from their class roster prior to certifying the respective class roster. A student's financial aid will be re-evaluated accordingly and the student will only receive funding for those courses attended as of the course census date.

Before the 60% point of the semester, a student who is absent for 25% or more of a face-to-face or blended course or who misses 25% or more of assigned work for an online course will be withdrawn from the course with a grade of W. A student may also request to be withdrawn with a grade of W before the 60% point of the semester. After the 60% point of the semester, the student may request to be withdrawn if the student is passing, or be assigned the final grade earned at the end of the semester after grades have been updated to reflect missing work

Course Outline or Schedule:

	Lecture/Work	Available	Due
Week 1	2.1 Rates of Change and Tangents to Curves 2.2 Limit of a Function and Limit Laws	Jan. 12	Jan. 31
Week 2	2.3 The Precise Definition of a Limit 2.4 One Sided Limits		
Week 3	2.5 Continuity		
	2.6 Limits Involving Infinity; Asymptotes Review Chapter 2		
	Exam Chapter 2	Jan. 12	Jan. 31
Week 4	3.1 Tangents and Derivatives at a Point 3.2 The Derivative as a Function	Feb 1	Feb. 21
Week 5	3.3 Differentiation Rules 3.4 Derivative as a Rate of Change		

Week 6	3.5 Derivatives of Trig Functions Review Ch. 3 Sec. 1-5		
	Exam Chapter 3 Sections 1-5	Feb. 1	Feb 21
Week 7	3.6 The Chain Rule 3.7 Implicit Differentiation	Feb. 22	Mar. 21
Week 8	3.8 Derivatives of Inverse Functions and Logs 3.9 Inverse Trig Functions		
Week 9	3.10 Related Rates Review Ch. 3 Sections 6-10		
	Exam Ch. 3 Sections 6-10	Feb. 22.	Mar. 21
Week 10	4.1 Extreme Values of Functions 4.2 Mean Value Theorem	Mar 22	Apr 11
Week 11	4.3 Monotonic Functions and 1 st Derivative Test 4.4 Concavity and Curve Sketching		
Week 12	4.5 Indeterminate forms and L'Hopital's Rule 4.6 Applied Optimization 4.8 Antiderivatives		
	Exam Ch. 4	Mar 22	Apr 11
Week 13	5.1 Area and Estimating with Finite Sums 5.2 Sigma Notation and Limits of Finite Sums 5.3 Definite Integral	Apr 12	Apr 30
Week 14	5.4 Fundamental Theorem of Calculus 5.5 Indefinite Integrals and Substitution Method		
Week 15	5.6 Area Between Two Curves Review Ch. 5		
	Exam Ch. 5	Apr 12	Apr 30
Week 16	Review and Final Exam	Apr 29	May 6

Course Grading Information:

1. Homework: There is a homework assignment for each section that is covered during the semester. Since the test questions will be similar to the homework problems they will be a good source of practice for the tests. Homework due dates will be posted online. You can work on homework assignments as many times as you want to improve your grade before the due date. Once the due date passes, your score is

frozen. You can still access problems to practice, but you can't improve your score. Your homework average will count as 30% of your total average.

3. Tests: Five tests plus a comprehensive Final. There are no makeup tests or retests. Tests will count as 50% of the final average.

Before each test is available (online or face to face), all homework assignments must be completed with at least a 70% score for that unit. A score of 0 will be assigned to that test if the student has not met this prerequisite for testing by the indicated due date.

4. Final Exam: A cumulative final exam is required and cannot be dropped. It will count 20% of the final average.
5. Grading in this course will be based on homework, unit/chapter tests, and a comprehensive final exam according to the following percentages.

You can check your grades using the “Gradebook” button on the left side of the MathLab component. The standard grading scale applies:

90 – 100 = A 80 – 89 = B 70 – 79 = C 60 – 69 = D 59 and below = F

Late Work, Attendance, and Make Up Work Policies:

Due dates are set for all homework and test dates are scheduled. If students do not make the deadlines, those grades become zero. If a test is missed, the grade is zero. Instructor has the right to make adjustments to this policy under special circumstances.

In this online course—attendance will be based on participation. You must work each week (either on homework or test). If you do not complete work in a week—that counts as an absence. You are allowed 4 such weeks, but if you receive a FIFTH absence, you could be dropped for attendance issues.

Student Behavioral Expectations

Students are expected to maintain classroom decorum, that includes respect for other students and the instructor, prompt and regular attendance, and an attitude that seeks to take full advantage of the education opportunity.

[Click Here for the MCC Attendance/Absences Policy](https://www.mclennan.edu/highlander-guide/policies.html)

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Click on the link above for the college policies on attendance and absences. Your instructor may have additional guidelines specific to this course.