



WACO, TEXAS

**COURSE SYLLABUS
AND
INSTRUCTOR PLAN**

TERI BARNES

**CALCULUS I
MATH 2413 Section 87
This is an Online Summer Course**

SUMMER II 2023

"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:

Math 2412 with a minimum grade of C, or both Math 1314 and Math 1316 with minimum grades of C, or passing score on non-credit equivalency exam for Math 2412, or consent of division chair.

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

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:

1. Evaluate limits and demonstrate their use in calculating rates of change and derivatives.
2. Determine the intervals of continuity for various functions.
3. Recall and utilize rules of differentiation (including power, product, quotient, and chain rules) and techniques for differentiating trigonometric, exponential, logarithmic, and implicit functions.
4. Apply derivatives to a variety of types of real-world problems, including analysis of functions and graphs, optimization, rates of change, and tangent lines.
5. Draw accurate graphs of algebraic and transcendental functions considering limits, continuity, and differentiability.

6. Use L'Hopital's Rule to evaluate limits of indeterminate forms.
7. Evaluate antiderivatives, using the method of substitution where appropriate.
8. Articulate the relationship between derivatives and integrals using the Fundamental Theorem of Calculus.
9. Evaluate definite integrals and apply them to solve problems involving areas and volumes.
10. Use a graphing calculator to graph and analyze functions and to evaluate derivatives and definite integrals when appropriate.

- **Critical Thinking**: Critical thinking is the essence of all mathematical studies. Through inductive and deductive reasoning, students explore problems using the logical process of inquiry, analysis, evaluation, and synthesis.
- **Communications**: Students participate in assignments involving topics related to Precalculus or other mathematics. They then share their result with their instructor and/or colleagues in class via written, oral, and/or visual methods. Assessment will use at least one of the following: board work, class time explanation, case study presentation, poster board presentation, and small group presentation.
Evaluation process will use departmental rubric for communication assessment.
- **Empirical/Quantitative**: Students work on various mathematical problem solving skills throughout the course. The course focuses on the manipulation and analysis of numerical data or observable facts as presented in application problems and/or problem skill sets in which students demonstrate their ability to reach informed conclusions using mathematical process. Assessment will include discussion, independent practice, or collaborative experience, or instructional technology to include questions from a departmental test bank and the CAAP test.

Course Outline or Schedule:

Dates	Lecture/Work	Tests/Objectives
	Intro 2.1 Rates of Change and Tangents to Curves 2.2 Limit of a Function and Limit Laws 2.3 The Precise Definition of a Limit 2.4 One Sided Limits	
	2.5 Continuity 2.6 Limits Involving Infinity; Asymptotes of Graphs Review Chapter 2	Exam Ch 2
	3.1 Tangents and Derivative at a Point 3.2 The Derivative as a Function	
	3.3 Differentiation Rules 3.4 The Derivative as a Rate of Change 3.5 Derivatives of Trig Functions	Exam Ch 3 Sec 1-5
	3.6 The Chain Rule 3.7 Implicit Differentiation 3.8 Derivatives of Inverse Functions and Logarithms	
	3.9 Inverse Trig Functions 3.10 Related Rates	Exam Ch 3 Sec 6-10
	4.1 Extreme Values of Functions 4.2 Mean Value Theorem 4.3 Monotonic Functions and First Derivative Test	
	4.4 Concavity and Curve Sketching 4.5 Indeterminate Forms and L'Hopital's Rule 4.6 Applied Optimization 4.8 Antiderivatives	Exam Ch. 4
	5.1 Area and Estimating with Finite Sums 5.2 Sigma Notation and Limits of Finite Sums	
	5.3 The Definite Integral 5.4 The Fundamental Theorem of Calculus	
	5.5 Indefinite Integrals and Substitution Method 5.6 Substitution and Area Between Two Curves Review Ch. 5	
		Exam Ch. 5

	Review for Final	
		Final Exam

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.

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)

(<https://www.mclennan.edu/highlander-guide/policies.html>)

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

** You will need to access each link separately through your Web browser (for example: Mozilla Firefox, Chrome, Microsoft Edge or Safari) to print each link's information.*

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ACADEMIC RESOURCES/POLICIES

Accommodations/ADA Statement:

Any student who is a qualified individual with a disability may request reasonable accommodations to assist with providing equal access to educational opportunities. Students should contact the Accommodations Coordinator as soon as possible to provide documentation and make necessary arrangements. Once that process is completed, appropriate verification will be provided to the student and instructor. Please note that instructors are not required to provide classroom accommodations to students until appropriate verification has been provided by the Accommodations Coordinator. For additional information, please visit www.mclennan.edu/disability.

Students with questions or who require assistance with disabilities involving physical, classroom, or testing accommodations should contact:

disabilities@mclennan.edu 254-
2998122
Room 319, Student Services Center

Title IX:

We care about your safety, and value an environment where students and instructors can successfully teach and learn together. If you or someone you know experiences unwelcomed behavior, we are here to help. Individuals who would like to report an incident of sexual misconduct are encouraged to immediately contact the acting Title IX Coordinator at titleix@mclennan.edu or by calling, Dr. Claudette Jackson, (Diversity, Equity & Inclusion/Title IX) at (254) 299-8465. MCC employees are mandatory reporters and must report incidents immediately to the Title IX Coordinator. Individuals may also contact the MCC Police Department at (254) 299-8911 or the MCC Student Counseling Center at (254) 299-8210. The MCC Student Counseling Center is a confidential resource for students. Any student or employee may report sexual harassment anonymously by visiting <http://www.lighthouse-services.com/mclennan/>.

Go to McLennan's Title IX webpage at www.mclennan.edu/titleix/. It contains more information about definitions, reporting, confidentiality, resources, and what to do if you or someone you know is a victim of sexual misconduct, gender-based violence or the crimes of rape, acquaintance rape, sexual assault, sexual harassment, stalking, dating violence, or domestic violence.

Student Support/Resources:

MCC provides a variety of services to support student success in the classroom and in your academic pursuits to include counseling, tutors, technology help desk, advising, financial aid, etc. A listing of these and the many other services available to our students is available at <http://www.mclennan.edu/campus-resource-guide/>

Academic Support and Tutoring is here to help students with all their course-related needs. Specializing in one-on-one tutoring, developing study skills, and effectively writing essays. Academic Support and Tutoring can be found in the Library and main floor of the Learning Commons. This service is available to students in person or through Zoom from 7:30 am - 6:00 pm Monday through Thursday and 7:30 am - 5:00 pm on Friday. You can contact the Academic Support and Tutoring team via Zoom (<https://mclennan.zoom.us/j/2542998500>) or email (ast@mclennan.edu) during the above mentioned times.

College personnel recognize that food, housing, and transportation are essential for student success. If you are having trouble securing these resources or want to explore strategies for balancing life and school, we encourage you to contact either MCC CREW – Campus Resources Education Web by calling (254) 299-8561 or by emailing crew@mclennan.edu or a Success Coach by calling (254) 299-8226 or emailing SuccessCoach@mclennan.edu. Both are located in the Completion Center located on the second floor of the Student Services Center (SSC) which is open Monday-Friday from 8 a.m.-5 p.m.

Paulanne's Pantry (MCC's food pantry) provides free food by appointment to students, faculty and staff. To schedule an appointment, go to https://mclennan.co1.qualtrics.com/jfe/form/SV_07byXd7eB8iTqJg. Both the Completion Center and Paulanne's Pantry are located on the second floor of the Student Services Center (SSC).

MCC Foundation Emergency Grant Fund:

Unanticipated expenses, such as car repairs, medical bills, housing, or job loss can affect us all. Should an unexpected expense arise, the MCC Foundation has an emergency grant fund that may be able to assist you. Please go to

<https://www.mclennan.edu/foundation/scholarships-and-resources/emergencygrant.html> to find out more about the emergency grant. The application can be found at https://www.mclennan.edu/foundation/docs/Emergency_Grant_Application.pdf.

MCC Academic Integrity Statement:

Go to www.mclennan.edu/academic-integrity for information about academic integrity, dishonesty, and cheating.

Minimum System Requirements to Utilize MCC's D2L|Brightspace:

Go to <https://www.mclennan.edu/center-for-teaching-and-learning/FacultyandStaffCommons/requirements.html> for information on the minimum system requirements needed to reliably access your courses in MCC's D2L|Brightspace learning management system.

Minimum Technical Skills:

Students should have basic computer skills, knowledge of word processing software, and a basic understanding of how to use search engines and common web browsers.

Backup Plan for Technology:

In the event MCC's technology systems are down, you will be notified via your MCC student email address. Please note that all assignments and activities will be due on the date specified in the Instructor Plan, unless otherwise noted by the instructor.

Email Policy:

McLennan Community College would like to remind you of the policy (<http://www.mclennan.edu/employees/policy-manual/docs/E-XXXI-B.pdf>) regarding college email. All students, faculty, and staff are encouraged to use their McLennan email addresses when conducting college business.

A student's McLennan email address is the preferred email address that college employees should use for official college information or business. Students are expected to read and, if needed, respond in a timely manner to college emails. For more information about your student email account, go to www.mclennan.edu/studentemail.

Instructional Uses of Email:

Faculty members can determine classroom use of email or electronic communications. Faculty should expect and encourage students to check the college email on a regular basis. Faculty should inform students in the course syllabus if another communication

method is to be used and of any special or unusual expectations for electronic communications.

If a faculty member prefers not to communicate by email with their students, it should be reflected in the course syllabus and information should be provided for the preferred form of communication.

Email on Mobile Devices:

The College recommends that you set up your mobile device to receive McLennan emails. If you need assistance with set-up, you may email Helpdesk@mclennan.edu for help.

You can find help on the McLennan website about connecting your McLennan email account to your mobile device:

- [Email Setup for iPhones and iPads](#)
- [Email Setup for Androids](#)

Forwarding Emails:

You may forward emails that come to your McLennan address to alternate email addresses; however, the College will not be held responsible for emails forwarded to an alternate address that may be lost or placed in junk or spam filters.

For more helpful information about technology at MCC, go to [MCC's Tech Support Cheat Sheet](#) or email helpdesk@mclennan.edu.

Disclaimer:

The resources and policies listed above are merely for informational purposes and are subject to change without notice or obligation. The College reserves the right to change policies and other requirements in compliance with State and Federal laws. The provisions of this document do not constitute a contract.