McLennan
C O M M U N I T Y
C O L L E G E

WACO, TEXAS

COURSE SYLLABUS
AND
INSTRUCTOR PLAN

Calculus for Business and Social Sciences

MATH 1325.87

Matt Shelton

NOTE: This is a 16-week course.

AN EQUAL OPPORTUNITY INSTITUTION   Spring 2022

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Course Description:

Limits and continuity, derivatives, graphing and optimization, exponential and logarithmic functions, antiderivatives, integration, applications to management, economics, and business.

(The content level of MATH 1325 is expected to be below the content level of MATH 2413 Calculus I).

Presents the study of limits and their applications in differential and integral calculus, emphasizing both conceptual and applied mathematics.

Topics may include optimization of functions, curve sketching, definite and indefinite integrals, differential equations, partial derivatives, and Lagrange multipliers.

Prerequisites and/or Corequisites:

MATH 1314 or MATH 1324 with a minimum grade of C, or pass college algebra placement test or consent of division chair.

Instructor Information:

Instructor Name: Matt Shelton
MCC E-mail: mshelton@mclennan.edu
Office Phone Number: (254)299-8834
Office Location: MATH 209
Office/Teacher Conference Hours: Monday, Wednesday 2:00p – 3:00p (Online via Zoom)
Tuesday, Thursday 9:00a – 10:00a (Online via Zoom)
1:00p – 2:00p (In person)

Required Text & Materials:

Title: MyMathLab Access Code (Included if you chose Inclusive Access for this course)
Publisher: Pearson
ISBN: 97801323828120

TI-83 or 84 graphing calculator

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

Methods of Teaching and Learning:

MyMathLab is the online component that will house the course information. Homework will be done online in this environment. Lecture notes, reference materials and videos are available there as well.

- Communications: Students participate in assignments involving topics related to finite math or other mathematics with an emphasis on business and social science application problems. They then share their results with their instructor and/or colleagues in class via written, oral, and visual methods.
- 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.
- Empirical and Quantitative Skills: 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 processes.

Course Objectives and/or Competencies:

- Apply calculus to solve business, economics, and social sciences problems.
- Apply appropriate differentiation techniques to obtain derivatives of various functions, including logarithmic and exponential functions.
- Solve application problems involving implicit differentiation and related rates.
- Solve optimization problems with emphasis on business and social sciences applications.
- Determine appropriate technique(s) of integration.
- Integrate functions using the method of integration by parts or substitution, as appropriate.
- Solve business, economics, and social sciences applications problems using integration techniques.

Course Outline or Schedule:
This is only a suggested schedule to keep you on pace. See below regarding due dates for assignments.

Dates	Lecture/Work	Tests/Objectives
Week 1	**12.1 Techniques for Finding Derivatives** **12.2 Derivatives of Products and Quotients**	

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Week 2	**12.3 The Chain Rule** **12.4 Derivatives of Exponential Functions**	
Week 3	**12.5 Derivatives of Logarithmic Functions** **13.1 Increasing and Decreasing Functions**	**Ch. 12 Quiz (OBJ 1-3)**
Week 4	**13.2 Relative Extrema** **13.3 Higher Derivatives, Concavity, and the Second Derivative Test**	
Week 5	**13.4 Curve Sketching** **14.1 Absolute Extrema**	**Ch. 13 Quiz (OBJ 1,2,4)**
Week 6	**14.2 Applications of Extrema** **14.3 Further Business Applications: Economic Lot Size; Economic Order Quantity; Elasticity of Demand**	
Week 7	**14.4 Implicit Differentiation** **14.5 Related Rates**	**Ch. 14 Quiz (OBJ 1-4)**
Week 8	**15.1 Antiderivatives** **15.2 Substitution**	
Week 9	**SPRING BREAK – Work ahead, catch up, or relax**	
Week 10	**15.4 The Fundamental Theorem of Calculus** **15.5 The Area Between Two Curves**	
Week 11	**16.1 Integration by Parts** **16.2 Volume and Average Value**	
Week 12	**16.4 Improper Integrals** **16.5 Solutions of Elementary and Separable Differential Equations**	**Ch. 15/16 Quiz (OBJ 1,5 – 7)**
Week 13	**17.1 Functions of Several Variables** **17.2 Partial Derivatives**	
Week 14	**17.3 Maxima and Minima** **17.4 Lagrange Multipliers**	
Week 15	**17.6 Double Integrals**	**Ch. 17 Quiz (OBJ 1,2,4-7)**
Week 16	**Review for Final**	
Week 17		**Final Exam (ALL OBJ)**

This course will use a variety of internal and external assessments. A faculty developed comprehensive final exam will access the core objectives of critical thinking and empirical/quantitative analysis. These core objectives will also be assessed using parts of a standardized test (CAAP). A faculty designed rubric will be used to assess communication skills as well. Review of such items such as GPA, retention levels, and success in following course may be used to evaluate the effectiveness of student learning.

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Course Grading Information:

Homework: There is an online homework assignment for each section that is covered during the semester. All of the homework assignments need to be completed by 11:59pm on May 1st. They will be your main source of practice for the quizzes. You can work on a homework assignment as many times as you want to improve your grade up until the due date. Your homework average will count 20% of your final grade.

Chapter Quizzes: There will be online quizzes over the chapters covered in this course. Unlike the homework, the quizzes can only be attempted once (see make-up section below), and they are timed. You will have 85 minutes (the same amount of time you would get in a face-to-face course) to complete each quiz once you start. There is no way to save your progress and return at a later time to finish. You must make sure that when you start a quiz you have enough time to complete it. Also make sure that when you are done you hit the "Submit Test" button or else it may not record your grade, and you will not be permitted to access it again. Also if you accidentally close the quiz window or click a link that takes you away from the quiz, you will be locked out of the quiz and not be permitted to access it again. The quizzes will look exactly like the homework problems for the sections covered. The quizzes must be completed by 11:59pm on May 1st. Each quiz will count 12% of your final grade.

Final Exam: There will be a comprehensive final exam. It will be done online and will also be timed. You will have 120 minutes to complete the final exam. The problems on the test will look like the quiz problems from the previous chapters. The final exam will be due by 11:59pm on May 3rd. It will count as 20% of your final grade.

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 lower = F

Communication Assignments Rubric

Course name/number/section: Student name/number:
Type of Communication Event:
___Boardwork
___Classtime explanation

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___Personal interview

___Case study presentation   ___Poster board project presentation

___Small group presentation ___Online presentation

	4	3	2	1
IN WRITTEN LANGUAGE	Student demonstrates **full knowledge with no mistakes** and **elaborates** on mathematical concepts.	Student demonstrates **good knowledge** but does **not elaborate.**	Student demonstrates **limited knowledge** but makes **several mistakes**.	Student does **not have a grasp** of the mathematical information.
IN ORAL LANGUAGE	Student uses **fluent and accurate** words to describe mathematical concepts and processes.	Student uses **somewhat appropriate** words to describe mathematical concepts and processes.	Student uses **vague words** to describe mathematical concepts and processes.	Student uses **incorrect and confusing words** to describe mathematical concepts and processes.
IN VISUAL PRESENTATION	Student uses **appropriate and accurate** visual representation of mathematical concepts and processes.	Student uses **somewhat appropriate** visual representation of mathematical concepts and processes.	Student uses **some inaccuracy in** visual representation of mathematical concepts and processes.	Student uses **total inaccuracy in** visual representation of mathematical concepts and processes.

Late Work, Attendance, and Make Up Work Policies:

Due dates are set for all homework, quizzes, and tests. If students do not make the deadlines, those grades become zero. I plan on dropping a couple of the lowest homework grades at the end of the semester. Each student will be allowed one make-up quiz for the semester in case you accidentally get locked out or you just make a low score. Your make-up assignment will need to be completed by 11:59pm on May 2nd. It is your responsibility to contact me when you've decided which quiz you would like to make up.

Attendance will be monitored every week. If you are counted absent 4 times before March 25th you will be automatically dropped from the course unless you already have 6 drops on your record. In that case you will have to stay enrolled and earn a grade at the end of the semester. To be counted as present during a week (a week begins on Monday and ends Sunday night at 11:59pm) you must submit work (can be as little as one problem) on at least one assignment in MyMathLab.

Student Behavioral Expectations or Conduct Policy:

Cheating will not be tolerated in class. Having someone else do your online homework assignment or tests are both violations of the academic integrity policy and either may result in failing grades and/or being dropped from the class. Infractions such as these will be reported to the administration for tracking and possible college action. At any time a student can be asked to prove that the work submitted is their own.

*** [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.

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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
> 254-299-8122
> 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 Title IX Coordinator at titleix@mclennan.edu or by calling Dr. Drew Canham (Chief of Staff for Diversity, Equity & Inclusion/Title IX) at (254) 299-8645. Individuals also may contact the MCC Police Department at 299-8911 or the MCC Student Counseling Center at MCC 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/

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 a Success Coach by calling (254) 299-8226 or emailing SuccessCoach@mclennan.edu. Students may visit the Completion Center Monday-Friday from 8 a.m.-5 p.m. to schedule a meeting with a Success Coach and receive additional resources and support to help reach academic and personal goals. Paulanne's Pantry (MCC's food pantry) provides free food by appointment to students, faculty and staff based on household size. Text (254) 870-7573 to schedule a pantry appointment. The Completion Center and 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/Faculty-and-Staff-Commons/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.

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.

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.

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.