MATH 2413 Calculus I

CREDIT
4 Semester Credit Hours (4 hours lecture)

MODE OF INSTRUCTION
Face to Face

PREREQUISITE/CO-REQUISITE:
Passed MATH 2412 Pre-Calculus or equivalent course with a "C" or better.

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.

COURSE OBJECTIVES
Upon successful completion of this course, the student will be able to:

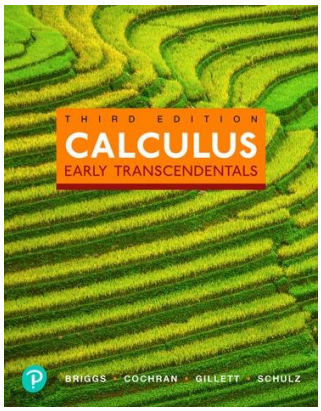
1. Develop solutions for tangent and area problems using the concepts of limits, derivatives, and integrals.
2. Draw graphs of algebraic and transcendental functions considering limits, continuity, and differentiability at a point.
3. Determine whether a function is continuous and/or differentiable at a point using limits.
4. Use differentiation rules to differentiate algebraic and transcendental functions.
5. Identify appropriate calculus concepts and techniques to provide mathematical models of real-world situations and determine solutions to applied problems.
6. Evaluate definite integrals using the Fundamental Theorem of Calculus.
7. Articulate the relationship between derivatives and integrals using the Fundamental Theorem of Calculus.

Approved: Initials/date

INSTRUCTOR CONTACT INFORMATION

Instructor:	Chris Sams
Email:	casams@lit.edu
Office Phone:	409-247-5186
Office Location:	TC Rm. 240
Office Hours:	M: 9:30am-12:10pm; 1:40pm-2:30pm W: 11:00am-12:10pm; 1:40pm-2:30pm TR: 8:00am-9:20am; 1:50pm-2:30pm F: 9:30am-12:00pm

REQUIRED TEXTBOOK AND MATERIALS



18-Week access $89.99
ISBN- 13:9780136679103

24-Month access $149.99
ISBN- 13:9780138118532

(Comes inclusive with ELE bundle for $42)
Calculator of your choice. (Ask instructor for available resources)

ATTENDANCE POLICY

Face-to-face classes: you are expected to attend every class. Failure to attend may result in being dropped or loss of credit (failing the course), with or without warning.
Online classes: do not attend class but are expected to login to blackboard at least twice a week and complete assignments prior to due date. Failure to complete assignments prior to due date may result in loss of credit. Late work may not be accepted.

DROP POLICY

If you wish to drop a course, you are responsible for initiating and completing the drop process by the specified drop date as listed on the Academic Calendar. If you stop coming to class and fail to drop the course, you will earn an “F” in the course.

COURSE CALENDAR

Week of	TOPIC	ASSIGNMENTS (Due on this Date)
Aug. 25	Syllabus 1.1 Review of Functions 1.2 Representing Functions	
Sept. 1	1.3 Inverse, Exponential, and Logarithmic Functions 1.4 Trigonometric Functions and Their Inverses	
Sept. 8	2.1 The Idea of Limits 2.2 Definitions of Limits	
Sept. 15	2.3 Techniques for Computing Limits 2.4 Infinite Limits	
Sept. 22	2.5 Limits at Infinity 2.6 Continuity	
Sept. 29	2.7 Precise Definitions of Limits 3.1 Introducing the Derivative **Test 1 (Ch. 1&2) Due Oct. 2**	All Chapter 1 and 2 Assignments due Friday Oct 3
Oct. 6	3.2 The Derivative as a Function 3.3 Rules of Differentiation 3.4 Product and Quotient Rules	
Oct. 13	3.5 Derivatives of Trig Functions 3.6 Derivatives as Rates of Change 3.7 The Chain Rule	
Oct. 20	3.8 Implicit Differentiation 3.11 Related Rates **Test 2 (Ch. 3) Due Oct 23**	All Chapter 3 Assignments due Friday Oct 24
Oct. 27	4.1 Maxima and Minima 4.2 Mean Value Theorem 4.3 What the derivatives Tells Us	
Nov. 3	4.4 Graphing Functions 4.5 Optimization Problems	
Nov. 10	4.6 Linear Approximation and Differentials 4.7 L'Hôpital's Rule 4.9 Antiderivatives	
Nov. 17	**Test 3 (Ch. 4) Due Nov 18** 5.1 Approximating Areas under Curves 5.2 Definite Integrals	All Chapter 4 Assignments due Friday Nov 21
Nov. 24 Nov. 26-28	**Core Assessment** **Campus Closed Thanksgiving Holiday**	Due Nov 25
Dec. 1	5.3 Fundamental Theorem of Calculus 5.4 Working with Integrals 5.5 Substitution Rule	Due Dec 7th

Dec. 5	**Final Exam Due Dec. 7th**	Due Dec 7th

STUDENT EXPECTED TIME REQUIREMENT

For every hour in class (or unit of credit), students should expect to spend at least two to three hours per week studying and completing assignments. For a 3-credit-hour class, students should prepare to allocate approximately six to nine hours per week outside of class in a 16-week session OR approximately twelve to eighteen hours in an 8-week session. Online/Hybrid students should expect to spend at least as much time in this course as in the traditional, face-to-face class.

COURSE EVALUATION

Final grades will be calculated according to the following criteria:

Tests	**60%**
Course Assignments	**20%**
Core Assessment	**20%**

GRADE SCALE

- 90-100 A
- 80-89 B
- 70-79 C
- 60-69 D
- 0-59 F

TECHNICAL REQUIREMENTS

The latest technical requirements, including hardware, compatible browsers, operating systems, etc. can be online at https://lit.edu/online-learning/online-learning-minimum-computer-requirements. A functional broadband internet connection, such as DSL, cable, or WiFi is necessary to maximize the use of online technology and resources.

DISABILITIES STATEMENT

The Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. LIT provides reasonable accommodations as defined in the Rehabilitation Act of 1973, Section 504 and the Americans with Disabilities Act of 1990, to students with a diagnosed disability. The Special Populations Office is located in the Eagles' Nest Room 129 and helps foster a supportive and inclusive educational environment by maintaining partnerships with faculty and staff, as well as promoting awareness among all members of the Lamar Institute of Technology community. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409)-951-5708 or email

specialpopulations@lit.edu. You may also visit the online resource at Special Populations - Lamar Institute of Technology (lit.edu).

STUDENT CODE OF CONDUCT STATEMENT
It is the responsibility of all registered Lamar Institute of Technology students to access, read, understand and abide by all published policies, regulations, and procedures listed in the *LIT Catalog and Student Handbook*. The *LIT Catalog and Student Handbook* may be accessed at www.lit.edu. Please note that the online version of the *LIT Catalog and Student Handbook* supersedes all other versions of the same document.

ARTIFICIAL INTELLIGENCE STATEMENT
Lamar Institute of Technology (LIT) recognizes the recent advances in Artificial Intelligence (AI), such as ChatGPT, have changed the landscape of many career disciplines and will impact many students in and out of the classroom. To prepare students for their selected careers, LIT desires to guide students in the ethical use of these technologies and incorporate AI into classroom instruction and assignments appropriately. Appropriate use of these technologies is at the discretion of the instructor. Students are reminded that all submitted work must be their own original work unless otherwise specified. Students should contact their instructor with any questions as to the acceptable use of AI/ChatGPT in their courses

STARFISH
LIT utilizes an early alert system called Starfish. Throughout the semester, you may receive emails from Starfish regarding your course grades, attendance, or academic performance. Faculty members record student attendance, raise flags and kudos to express concern or give praise, and you can make an appointment with faculty and staff all through the Starfish home page. You can also login to Blackboard or MyLIT and click on the Starfish link to view academic alerts and detailed information. It is the responsibility of the student to pay attention to these emails and information in Starfish and consider taking the recommended actions. Starfish is used to help you be a successful student at LIT.

ADDITIONAL COURSE POLICIES/INFORMATION

Mr. Sams Additional Information

My Teaching Philosophy

I believe that all students can learn. If you've never been good at math that does not mean you never will be good at math. With proper guidance and practice you can learn anything. The way you practice sports or practice learning a musical instrument is the same practice we must adopt to learn mathematics. No one learned to ride a bike by listening to

lectures, you had to practice and endure falls and crashes. I'm here to help you and hopefully explain topics and concepts in such a way that it's easy to digest. However, you must practice if you want to learn.

What To Expect from Instructor Sams:

- Response to email within 24 (except Friday afternoon and weekends) / Remind text response same day **(Remind preferred)** Please add name course and section to email and text so that I can Identify you
- Flexible office hours/ virtual help when needed. (Schedule an appointment with me if my offered hours do not work for you)
- Grade updates within a week of syllabus due date (Please wait until a week of submission/syllabus due date before inquiring about a grade)
- Extra credit opportunities

Student Behavior Expectations:

- Join remind for text communication. (Directions found on Blackboard start here)
- Seek help from instructor early and often, do not wait until the last minute!
- Plan ahead; if you will miss an exam, make prior arrangements to take it early or schedule a make-up date at instructors' convenience
- When sending emails identify yourself with class and section
- Participate in class lecture/discussions.
- Keep in mind that each student comes from a different cultural background and brings a different set of beliefs and values. As a result, students may disagree on various topics during discussion. Disagreements can lead to critical thinking and deeper understanding, therefore be respectful of other class members and different opinions. Disrespect for others will not be tolerated.
- You are adults, you will be treated as such. If you need to excuse yourself from class for work call, personal family call, or restroom etc. Please do so quietly with minimal disruptions. Please know that you are responsible for any information that you miss during your absence.

Assignments:

All homework assignments will be completed in MyMathLab. A link to MyMathLab, along with instructions on how to register, can be found in Blackboard under "Course Information."

Homework assignments are 20% of your final course grade. Assignments due dates are located in MyMathLab. Each assignment must be completed before the deadline. Late assignments will be accepted with 20% penalty.

YOU CAN SCORE 100% ON EVERY MYMATHLAB ASSIGNMENT as long as you complete it before the due date. You have an unlimited amount of attempts for each problem. After answering a problem incorrectly three times, you will receive a new, but similar problem for which you can receive full credit. YOU CAN DO THIS UNTIL YOU SCORE 100%, as long as the assignment is not past due. After the due date, you will only be able to improve your score to 80%. Your score will be available to view in MyMathLab.

Tests:

Tests including Final exam will make up 60% of your final course grade. Each test will be given in class or given online and proctored through Respondus Lockdown Browser. Make-up exams will only be given in extreme circumstances. If for some reason you are unable to take a test, your comprehensive final will replace your lowest test score.(Final exam will not replace multiple exams, only one.)

Test scores will be located in Blackboard.

Core Assessment:

The Core Assessment constitutes 20% of your final course grade. It is required. The due date will be found in your syllabus course calendar.