MATH 2413 001/L01 **Fall 2024**

Calculus I

Time: MW 12:30 – 1:45, TR 12:30 – 1:20
Room: ACR 206

Instructor: Eric Funasaki
Office: ACR 109C / BAB 210
Phone: 432-837-8109
e-mail: eric.funasaki@sulross.edu

Office hours:

MW 2:30 – 4:20, R 1:30 – 2:20, or by appointment.

Textbook:

Calculus: Concepts & Contexts, 4th edition, by James Stewart.

Course Description:

Topics include limits and continuity; the derivative; techniques for differentiation of algebraic, logarithmic, exponential, and trigonometric functions; applications of the derivative; and anti-differentiation.

Prerequisites:

Math 1314 and Math 1316 or consent of instructor.

Mathematics Program Student Learning Objectives:

The student should be able to:
1. Apply knowledge of basic mathematics principles;
2. Identify and provide valid proofs or solutions for theorems or problems; and
3. Recognize and dispute invalid mathematical statements using counterexamples.

Core Curriculum Student Learning Objective:

Empirical & Quantitative. Students will develop empirical and quantitative skills to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.

Marketable Skills:

1. Students demonstrate logical and analytical skills.
2. Students demonstrate problem-solving using analytical and algebraic methods.
3. Students use technology in problem-solving and presentation.
4. Students use communication and pedagogical skills.

Course Objectives:

The student will be able to:

1. Find limits of continuous and discontinuous functions, including limits involving infinity;
2. Find the derivative of algebraic and transcendental functions;
3. Find the derivative of a function using the Product, Quotient, and Chain Rules;
4. Use the derivatives of a function to determine its maximum and minimum values as well as the shape of its graph; and
5. Find the antiderivatives of a function.

Course Assessment:

Your grade will be based on the following components:

10% In-class problems and participation
25% Homework assignments and quizzes
45% Exams
20% Comprehensive Final Exam

The grading scale will be:

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

Course Schedule (tentative):

Week 1

8/26	M	2.2 The Limit of a Function
8/27	T	2.2 The Limit of a Function
8/28	W	2.3 Calculating Limits Using the Limit Laws
8/29	R	2.3 Calculating Limits Using the Limit Laws

Week 2

9/2	**M**	**Labor Day (no class)**
9/3	T	2.4 Continuity
9/4	W	2.4 Continuity
9/5	R	2.5 Limits Involving Infinity

Week 3

9/9	M	2.5 Limits Involving Infinity
9/10	T	2.5 Limits Involving Infinity
9/11	W	2.6 Derivatives and Rates of Change
9/12	R	2.6 Derivatives and Rates of Change

Week 4

9/16	M	2.7 The Derivative as a Function
9/17	T	2.7 The Derivative as a Function
9/18	W	3.1 Derivatives of Polynomial and Exponential Functions
9/19	R	Review for Exam 1

Week 5

9/23	M	Review for Exam 1
9/24	**T**	**Exam 1**
9/25	W	3.1 Derivatives of Polynomial and Exponential Functions
9/26	R	3.2 The Product and Quotient Rules

Week 6

9/30	M	3.2 The Product and Quotient Rules
10/1	T	3.3 Derivatives of Trigonometric Functions
10/2	W	3.3 Derivatives of Trigonometric Functions
10/3	R	3.4 The Chain Rule

Week 7

10/7	M	3.4 The Chain Rule
10/8	T	3.5 Implicit Differentiation
10/9	W	3.5 Implicit Differentiation
10/10	R	3.6 Inverse Trigonometric Functions and Their Derivatives

Week 8

10/14	M	3.6 Inverse Trigonometric Functions and Their Derivatives
10/15	T	3.7 Derivatives of Logarithmic Functions
10/16	W	3.7 Derivatives of Logarithmic Functions
10/17	R	Review for Exam 2

Week 9

10/21	M	Review for Exam 2
10/22	**T**	**Exam 2**
10/23	W	4.2 Maximum and Minimum Values
10/24	R	4.2 Maximum and Minimum Values

Week 10

10/28	M	4.2 Maximum and Minimum Values
10/29	T	4.2 Maximum and Minimum Values
10/30	W	4.3 Derivatives and the Shapes of Curves
10/31	R	4.3 Derivatives and the Shapes of Curves

Week 11

11/4	M	4.3 Derivatives and the Shapes of Curves
11/5	T	4.3 Derivatives and the Shapes of Curves
11/6	W	4.3 Derivatives and the Shapes of Curves
11/7	R	4.5 Indeterminate Forms and l'Hospital's Rule

Week 12

11/11	M	4.5 Indeterminate Forms and l'Hospital's Rule
11/12	T	4.5 Indeterminate Forms and l'Hospital's Rule
11/13	W	4.5 Indeterminate Forms and l'Hospital's Rule
11/14	R	4.6 Optimization Problems

Week 13

11/18	M	4.8 Antiderivatives
11/19	T	Review for Exam 3
11/20	W	Review for Exam 3
11/21	**R**	**Exam 3**

Week 14

11/25	M	4.8 Antiderivatives
11/26	T	4.8 Antiderivatives
11/27	**W**	**Thanksgiving Break (no class)**
11/28	**R**	**Thanksgiving Break (no class)**

Week 15

12/2	M	Review for Final Exam
12/3	T	Review for Final Exam
12/4	W	Review for Final Exam
12/5	**R**	**Dead Day (no class)**

Week 16

12/10	**T**	**Final Exam (12:30 pm – 2:30 pm)**

Attendance Policy:

Role will be taken. You are responsible for all material covered in class as well as any assignments and announcements that are made. If you miss an assignment, exam, or quiz you will receive a grade of zero unless I have been notified in advance.

Sul Ross State University policy allows an instructor to drop a student with a grade of W or F when 9 hours of class are missed. For this course that is when you miss **7** classes.

Cheating:

Cheating will not be tolerated. Anyone caught cheating will receive a grade of zero on that assignment. This includes homework assignments where the student who copied another student's work and the student who allowed their work to be copied will both receive a grade of zero.

Cell Phones and Other Electronic Devices:

Your cell phone must be **off** while you are in class. You may not read or send text messages while class is in session. If there is an unusual situation where you simply must be able to read and send a message without delay, place your phone in vibrate mode and leave the room before reading and responding. No other electronic devices may be used during class without the permission on the instructor.

ADA Statement:

Sul Ross State University (SRSU) is committed to equal access in compliance with the Americans with Disabilities Act of 1973. It is SRSU policy to provide reasonable accommodations to students with documented disabilities. It is the student's responsibility to initiate a request each semester for each class. Students seeking accessibility or accommodation services must contact Mrs. Mary Schwartze Grisham, LPC, SRSU's Accessibility Services Director at 432-837-8203 or email mschwartze@sulross.edu or contact Alejandra Valdez at 830-758-5006 or email alejandra.valdez@sulross.edu. Our office is located on the first floor of Ferguson Hall, room 112, and our mailing address is PO Box C-122, Sul Ross State University, Alpine, Texas, 79832.

Student Responsibilities:

All full-time and part-time students are responsible for familiarizing themselves with the Student Handbook and the Undergraduate & Graduate Catalog and for abiding by the University rules and regulations. Additionally, students are responsible for checking their Sul Ross email as an official form of communication from the university. Every student is expected to obey all federal, state and local laws and is expected to familiarize him/herself with the requirements of such laws.

SRSU Distance Education Statement:

Students enrolled in distance education courses have equal access to the university's academic support services, such as library resources, online databases, and instructional technology support. For more information about accessing these resources, visit the SRSU website.

Students should correspond using Sul Ross email accounts and submit online assignments through Blackboard, which requires a secure login. Students enrolled in distance education courses at Sul Ross are expected to adhere to all policies pertaining to academic honesty and appropriate student conduct, as described in the student handbook. Students in web-based courses must maintain appropriate equipment and software, according to the needs and requirements of the course, as outlined on the SRSU website. Directions for filing a student complaint are located in the student handbook.

Department of Computer, Mathematical, and Physical Sciences
Sul Ross State University
Box C-18
Alpine, TX 79832