

Dual Credit Calculus 1 (4 credit hours)  
Mat 2413

Instructor  
Dodie Boyd

South Plains College

Taught at  
TRINITY CHRISTIAN HIGH SCHOOL

2024-2025

## Trinity Christian High School

**Instructor:** Dodie Boyd

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**Conference hours:** 2:10-3:30

**Google Classroom Code:** [ktbumuv](#)

**Text** (Provided by school): Contemporary Calculus, by Dale Hoffman & Calculus, Volume 1, Openstax by Edwin Herman and Gilbert Strang

Welcome to Calculus 1. This course information will tell you about the course. Almost all of your questions can be answered by reading this document. If you still have questions after reading over this information, please contact me. I would be glad to clarify anything for you. Let's get started and have an awesome year!

An understanding of the principles of calculus is essential for many fields of study, including mathematics, the sciences, engineering, economics, sociology and psychology, statistics, computer programming and system analysis. The study of calculus is also inherently valuable. For example, calculus requires the use of all of a student's mathematical knowledge; thus, calculus students begin to see mathematics as a whole rather than just as individual segments. Also, calculus students continuously use problem-solving skills, the development of which is a major focus of current mathematics programs across the nation.

### **Course Description**

Mat 2413 Calculus 1 (4-0) 4 hours. Limits and continuity; the Fundamental Theorem of Calculus; definition of the derivative of a function and techniques of differentiation; applications of the derivative of maximizing and 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.

## **PREREQUISITE**

Prerequisite: a 'C' or better in Math 2412 Pre-Calculus Math or a 'C' or better in MATH 1314 and MATH 1316 (or concurrent enrollment in MATH 1316).

### **Core Curriculum Objectives addressed:**

- **Communication skills** - to include effective written, oral and visual communication
- **Critical thinking skills** - to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.
- **Empirical and quantitative competency skills** - to manipulate and analyze numerical data or observable facts resulting in informed conclusions.

**Student Learning Outcomes:** Upon completion of this course and receiving a passing grade, 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.

### **Required Materials:**

- TI 84 Plus graphing calculator
- Folder/Notebook 1" to 2"
- Something to take notes on
- Pencil

### Method of Instruction:

- Live lecture
- Multiple sample problems worked using Promethean Board
- Small groups
- Projects

### ATTENDANCE & MAKE-UP WORK

Attendance and effort are the most important activities for success in this course. If you are absent for any reason, make-up work is your responsibility. All lectures and homework missed will be in google classroom. The number of days to turn in work missed equals the number of days the student was absent. This applies to work assigned during the time the student was absent. A test or quiz being given on the day of return from an extended absence will be made up at a time arranged by the teacher. Students who will miss class due to a school sponsored activity which they are aware of in advance are expected to turn work in and pick up assignments **before** missing class. All assignments missed due to an extracurricular activity are due on the day you return to class. A student who stops attending or misses five classes may be administratively dropped with a grade of F or W.

### GRADING

10% - homework;      20% - quizzes;      70% - tests and projects

#### AVERAGE

#### GRADE IN COURSE

90-100

A

80-89

B

75-79

C

70-74

D

0-69

F

Final Grade is calculated as follows:

Fall Semester - ((1<sup>st</sup> Quarter grade X 4) + (2<sup>nd</sup> Quarter grade X 4) + (Fall Semester Exam Grade X 2)) = Fall Semester Final Grade

Spring Semester - ((3<sup>rd</sup> Quarter grade X 4) + (4<sup>th</sup> Quarter grade X 4) + (Spring Semester Exam Grade X 2)) = Spring Semester Final Grade

Final Class Grade - (Fall Semester Final Grade + Spring Semester Final Grade), divided by 2 = Final class grade.

All homework assignments will be graded in class and are due on the assigned date. No late papers are accepted. If you do not have your homework when it is due, then you will receive a zero for that assignment. You may come in during morning tutorials (7:45 – 8:00 am) or Academic Coaching to check your homework and ask questions. Homework is due when you come to class. The only exceptions for late homework papers will be if you were absent due to an illness, family illness and/or a death in the family. If possible, please let me know ahead of time if you are going to be absent. Quizzes will be given throughout the chapter as needed. Tests will be administered at the completion of each chapter. There are no retests on quizzes or tests.

## **TUTORING**

I will be in my classroom by 7:45 a.m. each morning if help is needed. Other tutorial times may be arranged.

## **GENERAL/MISCELLANEOUS**

### **Student Responsibilities and Expectations**

1. Each student is responsible for following all rules in the 2023-2024 Student Handbook for Trinity Christian School.
2. Come to class on time and prepared to learn.
3. Respect all property.
4. Respect all ideas given in class and do not talk while others are speaking.
5. Exemplify academic honesty and do your very best!

### **Things you need to know!!!**

1. All homework, quizzes and tests will be completed in pencil.
2. You must show all the work when answering a problem.
3. You will not be allowed to leave the classroom. Restroom breaks can be taken after classroom instruction.
4. You will not be allowed to bring any food into the classroom. You may bring drinks in the classroom as long as they have a lid.

**Course Policies for South Plains College** - Please see the following link for information about the following policies: [Syllabus Statements](#)

Intellectual Exchange Statement

Disabilities Statement

Non-Discrimination Statement

Title IX Pregnancy and Parenting Accommodations Statement

Campus Assessment, Response, and Evaluation Team

Campus Concealed Carry Statement

Covid-19

Artificial Intelligence Statement

## Mat 2413 Course Outline – Fall 2024 and Spring 2025

This schedule is tentative and subject to change. Changes will be announced in class.

<b>Chapter</b>	<b>Suggested Date</b>
<b>P - Sects. 1-5</b>	<b>08/15 - 09/09</b>
<b>Ch. P Test</b>	<b>09/11</b>
<b>1 – Sects. 1.0-1.4</b>	<b>09/13 – 10/01</b>
<b>Ch. 1 Test</b>	<b>10/03</b>
<b>2 – Sects. 2.0-2.4</b>	<b>10/07 – 10/28</b>
<b>Ch. 2 Test Pt. 1</b>	<b>10/30</b>
<b>2 – Sects. 2.5-2.10</b>	<b>11/01 – 12/02</b>
<b>Ch. 2 Test Pt. 2</b>	<b>12/04</b>
<b>Semester 1 Exam</b>	<b>12/12</b>
<b>3 – Sects. 3.1-3.7</b>	<b>01/08 – 02/10</b>
<b>Ch. 3 Test</b>	<b>02/12</b>
<b>4 – Sects. 4.1-4.9</b>	<b>02/19 - 03/31</b>
<b>Ch. 4 Test</b>	<b>04/02</b>
<b>6 - Sects. 6.2-6.5</b>	<b>04/04 - 04/22</b>
<b>Ch. 6 Test</b>	<b>04/24</b>
<b>Final Exam</b>	<b>05/06</b>