



## MATH 1210: Calculus I

| 2021 Winter Session   |   |
|---|---|
| <b>Total Class Sessions: 25</b><br><b>Class Sessions Per Week: 6</b><br><b>Total Weeks: 4</b><br><b>Class Session Length (Minutes): 145</b><br><b>Credit Hours: 4</b> | <b>Instructor: Staff</b><br><b>Classroom: TBA</b><br><b>Office Hours: TBA</b><br><b>Language: English</b> |

### Course Description:

This course discusses the following topics: functions; limits; continuity; derivatives; differentiation of algebraic functions; rules of differentiation, exponential, log, trigonometric, and inverse trigonometric functions; Applications to maxima, minima, and convexity of functions; the definite integral; the fundamental theorem of integral calculus; applications of integration and simple substitution.

### Course Materials:

*Essential Calculus: Early Transcendentals*,  
James Stewart, 2<sup>nd</sup> edition

### Course Assignments:

#### **Quizzes:**

There will be 7 quizzes administered through the whole semester and the two lowest scores will be dropped. Quizzes will always be completed in the first ten minutes of class. The quiz problems will be similar to homework problems and in-class examples. There will be no make-up quizzes.

#### **Exams:**

Midterm Exams

There will be three midterm exams in this course. The midterm exams will be based on concepts covered in class. They will be in-class, close-book and non-cumulative.

Final Exam

The final will be cumulative and close-book. Note that the final will not be taken during the normal class times. Exact time and location for final will be announced later.

### Course Assessment:

|                      |     |
|----------------------|-----|
| Quizzes (5 out of 7) | 15% |
| Midterm Exams 1      | 20% |
| Midterm Exams 2      | 20% |



|                 |             |
|-----------------|-------------|
| Midterm Exams 3 | 20%         |
| Final Exam      | 25%         |
| <b>Total</b>    | <b>100%</b> |

### **Grading Scale (percentage):**

| A+  | A   | A-  | B+  | B   | B-  | C+  | C   | C-  | D+  | D   | D-  | F   |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 98- | 93- | 90- | 88- | 83- | 80- | 78- | 73- | 70- | 68- | 63- | 60- | <60 |
| 100 | 97  | 92  | 89  | 87  | 82  | 79  | 77  | 72  | 69  | 67  | 62  |     |

### **Academic Integrity:**

Students are encouraged to study together, and to discuss lecture topics with one another, but all other work should be completed independently.

Students are expected to adhere to the standards of academic honesty and integrity that are described in the Chengdu University of Technology's *Academic Conduct Code*. Any work suspected of violating the standards of the *Academic Conduct Code* will be reported to the Dean's Office. Penalties for violating the *Academic Conduct Code* may include dismissal from the program. All students have an individual responsibility to know and understand the provisions of the *Academic Conduct Code*.

### **Special Needs or Assistance:**

Please contact the Administrative Office immediately if you have a learning disability, a medical issue, or any other type of problem that prevents professors from seeing you have learned the course material. Our goal is to help you learn, not to penalize you for issues which mask your learning.

### **Course Schedule:**

Class 1:

Review of Algebra and Trigonometry:

Diagnostic Tests for Algebra

Analytic Geometry

Functions

Class 2:

Functions and Limits:

Functions and Their Representations

A Catalog of Essential Functions



Class 3:

Functions and Limits:

The Limit of a Function

Calculating Limits

Class 4:

Quiz 1

Continuity

Limits Involving Infinity

Class 5:

Derivatives:

Derivatives and Rates of Change

The difference quotient, definition of derivative,

Class 6:

Derivatives:

Secant lines, average and instantaneous velocity

Tangent lines

Class 7:

Quiz 2

Derivatives:

The Derivative as a Function

Basic Differentiation Formulas

Class 8:

Midterm exam 1

Class 9:

Derivatives:

The Product and Quotient Rules;

Trig functions

Class 10:

Quiz 3

Derivatives:

The Chain Rule

Related Rates

Class 11:

Implicit Differentiation

Linear Approximations and Differentials

Class 12:



Quiz 4  
Exponential Functions  
Inverse Functions and Logarithms

Class 13:  
Derivatives of Logarithmic and Exponential Functions  
Exponential Growth and Decay

Class 14:  
Midterm 2

Class 15:  
Exponential Growth and Decay (Cont.)  
Inverse Trigonometric Functions

Class 16:  
Hyperbolic Functions  
Indeterminate Forms

Class 17:  
Quiz 5  
L'Hospital's Rule  
Maximum and Minimum Values

Class 18:  
Maximum and Minimum Values (Cont.)  
The Mean Value Theorem

Class 19:  
Derivatives and the Shapes of Graphs; Concavity  
Curve Sketching

Class 20:  
Midterm 3

Class 21:  
Curve Sketching (Cont.)  
Optimization Problems

Class 22:  
Quiz 6  
Newton's Method  
Antiderivatives

Class 23:



Integrals:  
Areas and Distances  
The Definite Integral

Class 24:  
Quiz 7  
Integrals: Evaluating Definite Integrals  
The Fundamental Theorem of Calculus

Class 25  
The Substitution Rule  
Wrap-Up  
Review for Final

Final Exam (Cumulative): TBA