

# 0701M110

## Calculus I

**Instructor:** TBA

**Time:** December 16, 2024 - January 17, 2025

**Office Hours:** by appointment

**Contact Hours:** 60 (50 minutes each)

**Credits:** 4

**E-mail:** TBA

### Course Description

Review of algebraic and trigonometric functions and their graphs, the concepts of limit and continuity, theory and techniques of differentiation, and applications of differentiation, introduction to the theory and techniques of integration.

### Required Textbook(s)

“*Calculus*”, 10th Edition by Larson. Coverage: Chapters 1-6, Select Sections

### Prerequisites

Students are assumed to have taken and passed a pre-calculus course. In particular, students should be proficient in high school algebra and geometry, as well as

trigonometry. Moreover, they should have studied exponential and logarithmic functions.

### Grading Policy

Your grade in this course will be determined by your performance in the following categories:

Participation (Q&A)	5%
Homework (MyOpenMath)	10%
Quizzes (Top 8 out of 9)	20%
Exam 1 (Weeks 1 and 2)	20%
Exam 2 (Weeks 3 and 4)	20%
Final Exam (Cumulative)	25%
<b>Total</b>	<b>100%</b>

### Late Policy:

Quizzes and Exams will not be accepted late, so be sure to plan accordingly. Homework will be accepted late with a 10% penalty each day late. This penalty only applies to questions that you submit after the deadline.

### Grading Scale

The instructor will use the grading system as applied by JNU:

Definition	Letter Grade	Score
Excellent	A	90~100
Good	B	80~89
Satisfactory	C	70~79
Poor	D	60~69
Failed	E	Below 60

## Course Schedule

### Week 1:

- 1.2: Finding Limits Graphically and Numerically
- 1.3: Evaluating Limits Analytically
- 1.4: Continuity and One-Sided Limits
- 1.5: Infinite Limits
- 2.1: The Derivative and the Tangent Line Problem

### Week 2:

- 2.2: Basic Differentiation Rules and Rates of Change
- 2.3: Product and Quotient Rules and Higher-Order Derivatives
- 2.4: The Chain Rule
- 2.5: Implicit Differentiation
- 2.6: Related Rates
- 3.1: Extrema on an Interval
- 3.2: Rolle's Theorem and the Mean Value Theorem
- **EXAM 1 (Weeks 1 - 2)**

### Week 3:

- 3.3: Increasing and Decreasing Functions and the First Derivative Test
- 3.4: Concavity and the Second Derivative Test
- 3.5: Limits at Infinity
- 3.6: A Summary of Curve Sketching
- 3.7: Optimization Problems

### Week 4:

- 4.1: Antiderivative and Indefinite Integration
- 4.2: Area
- 4.3: Riemann Sums and Definite Integrals
- 4.4: The Fundamental Theorem of Calculus
- 4.5: Integration by Substitution

- 5.1: The Natural Logarithmic Function: Differentiation
- 5.2: The Natural Logarithmic Function: Integration
- **EXAM 2 (Weeks 3 - 4)**

**Week 5:**

- 5.4: Exponential Functions: Differentiation and Integration
- 5.5: Bases Other than e and Applications
- 6.2: Growth and Decay
- 8.7: Indeterminate Form and L'Hopital's Rule
- **FINAL EXAM (Cumulative)**

**Academic Integrity**

As members of the Jinan University academic community, students are expected to be honest in all of their academic coursework and activities. Academic dishonesty, includes (but is not limited to) cheating on assignments or examinations; plagiarizing, i.e., misrepresenting as one's own work any work done by another; submitting the same paper, or a substantially similar paper, to meet the requirements of more than one course without the approval and consent of the instructors concerned; or sabotaging other students' work within these general definitions. Instructors, however, determine what constitutes academic misconduct in the courses they teach. Students found guilty of academic misconduct in any portion of the academic work face penalties that range from the lowering of their course grade to awarding a grade of E for the entire course.