MATH 120 – Elementary Calculus I (Course Outline)

Instructor: Hamed Moghaddam
Format: Online via Zoom
Schedule: Wednesdays, 6:30 – 8:00 PM
Dates: September 10 – December 17, 2025 (15 week)
Fee: $60.00 per hour for private sessions, or $30.00 per hour for group sessions (25 total hours).
Contact: Please complete the registration form, after which we will send you a PayPal link for the total fee.

Course Description

This course introduces the fundamental ideas of differential and integral calculus with emphasis on applications in business, economics, and social sciences. Students will learn concepts of differentiation, integration, exponential and logarithmic functions, optimization, and applications to real-world problems.

Course Objectives

- Understand and apply the concept of a derivative.
- Solve optimization and curve analysis problems.
- Differentiate and integrate exponential and logarithmic functions.
- Apply calculus concepts to business, probability, and economic models.
- Use integration techniques to calculate areas and solve applied problems.

Weekly Schedule (15 Weeks)

Week	Date	Topic
1	Sept 10	Introduction, Review of Functions, Limits & Concept of Slope
2	Sept 17	Definition of Derivative, Basic Differentiation Rules
3	Sept 24	Product Rule, Quotient Rule (optional), Chain Rule
4	Oct 1	Applications of Derivatives: Rate of Change & Marginal Analysis
5	Oct 8	Graphing with Derivatives: Increasing/Decreasing Functions, Concavity
6	Oct 15	Optimization Problems (Business & Economics Applications)
7	Oct 22	Exponential Functions – Definitions, Properties, and Derivatives
8	Oct 29	Logarithmic Functions – Properties and Differentiation
9	Nov 5	Applications: Exponential Growth, Decay, and Compound Interest
10	Nov 12	Introduction to Integration, Antiderivatives
11	Nov 19	Area Under Curves, Riemann Sums (optional), Definite Integrals

12	Nov 26	Fundamental Theorem of Calculus; Applications in Probability
13	Dec 3	Techniques of Integration, Applied Problems
14	Dec 10	Multivariable Functions (Optional: Partial Derivatives, Extrema)
15	Dec 17	Course Review & Comprehensive Final Exam

Textbook/Resources

• Recommended: *Calculus and its Applications* (Goldstein, Lay & Schneider), **15th Edition**,
• Supplemental worksheets and HW provided by instructor.

Notes

This is an estimate course syllabus and is subject to adjustments based on the professor's syllabus. We will meet for 1.5 hours weekly, and before the professor's exam, we will have a 2-hour exam review session. Course content and pacing will be adjusted as necessary to align with the professor's requirements.