

MA 121 Calculus for Business and Life Sciences I

Course Description: (3)

Differential Calculus as applied to engineering, business, economics and the management, life, and social sciences.

Calculator Policy: Please refer to your instructor's course syllabus to find their course-specific calculator policy.

Course Objectives:

- Business, life science, and engineering technology students will learn applied concepts of differential calculus
- Students will become fluent in concepts of limits and continuity
- Students will be able to conceptualize and explain average and instantaneous rates of change
- Students will understand derivative mechanics
- Students will apply derivative functions to real world applications.

Course Content:

Introduction

Review of functions and their graphs

The Straight Line and Linear Functions

Applications of the Straight Line Quadratic Functions

Graphs

Limits, Continuity, and Rates of Changes

Limits

Infinity in Limits

Continuity Average and Instantaneous Rates of Change

The Derivative

Definition of the Derivative Basic

Rules of Differentiation

Further Techniques of Differentiation:

Products, Quotients, and Rational Powers

Marginal Analysis in Business and Economics

The Chain Rule

Related Rates Problems

Implicit Differentiation

Applications of the Derivative

Increasing and Decreasing Functions

Relative Extreme Values of Functions

Absolute Extreme Values of Functions

The Second Derivatives

Applications to Curve Sketching

Additional Techniques for Curve Sketching

ACCOMMODATION STATEMENT:

In accordance with the Americans with Disabilities Act (ADA) and Section 504 of the Rehabilitation Act of 1973, the University offers reasonable accommodations to students with eligible documented learning, physical and/or psychological disabilities. Under Title II of the Americans with Disabilities Act (ADA) of 1990 and Section 504 of the Rehabilitation Act of 1973, a disability is defined as a physical or mental impairment that substantially limits one or more major life activities as compared to an average person in the population. It is the responsibility of the student to contact *Developmental Services* prior to the beginning of the semester to initiate the accommodation process and to notify instructors within the first three class meetings to develop an accommodation plan. Appropriate, reasonable accommodations will be made to allow each student to meet course requirements, but no fundamental or substantial alteration of academic standards will be made. Students needing assistance should contact *Developmental Services*.

UNIVERSITY OF NORTH ALABAMA