

Objective and Learning Outcomes **of Math 101**

Math 101 (Calculus I) is the first course in the Calculus sequence (Calculus I, II, III) offered by the Department of Mathematics & statistics in KFUPM. It is a 4-credit-hour course conducted through 3 lectures and 1 recitation class (a problem-solving class).

Objective: The objective of the course is to introduce students to three main topics of calculus; namely, Limits, Continuity, and Differentiation (methods and applications).

Learning Outcomes: After completing the course, students are expected to be able to

- evaluate various limit problems both algebraically and graphically,
- evaluate limits with indeterminate forms using L'hospital's rule,
- check the continuity of various types of functions,
- differentiate various types of functions using the differentiation rules: Powers, Sum, Difference, Product, Quotient Rules, Implicit and Logarithmic Differentiation,
- apply differentiation to find linear approximation, extrema, monotonicity, and concavity of functions,
- sketch the graph of some functions using differentiation,
- apply differentiation to solve some optimization problems,
- approximate roots of equations using Newton's Method
- find antiderivative of some simple functions.