Math 1261

Survey of Calculus

Master Syllabus

Valdosta State University

Mathematics Department

Math 1261 is a 3 credit hour course.

<u>Prerequisites:</u>
Math 1101(Math Modeling) or Math 1111(College Algebra) with a grade of C or better)

<u>Course Description:</u>
This course is an introduction to basic calculus with emphasis on applications in

<u>General Outline of Topics</u>

1.) Functions and Graphs.
   Graphs of functions including Quadratic, Rational, Exponential, and Logarithm functions
   Identify asymptote lines
   Applications of Exponential and Logarithm functions including growth, decay, compound interest, investment, and half-life.

2.) Limits and Derivatives
   Analysis of a limit & One-sided limits.
   Limit Properties
   Difference Quotient
   Limits to infinity and Infinite limits
   Continuity & Partition Number
   Average & Instantaneous Rate of Change
   Slope of the tangent line
   Sales Analysis
   Differentiation Properties – Power Rule, Sum & Difference
   Instantaneous velocity
   Marginal Analysis
      o Cost, Revenue, Profit functions
      o Exact, Marginal, and Average Cost, Revenue & Profit

3.) Additional Derivative Topics
   Graphing Growth functions
   Derivatives of Exponential and Logarithm functions
      o Review of Logarithm Laws and Properties
   Product and Quotient Rules with Applications
   The Chain Rule
   Implicit Differentiation

4.) Graphing and Higher Derivatives
   Increasing & Decreasing Intervals on a graph