
CREDITS:     4

COURSE DESCRIPTION:  Functions, limits, continuity, bounds, sets; the derivative of functions and applications; exponential, logarithmic, trigonometric and inverse functions. Prerequisite: MATH-121 College Math II or math placement score.

Previous:
Calculus, 8th Ed., by Larson, Hostetler & Edwards (adopted F05)
Calculus, 7th Ed., by Larson, Hostetler & Edwards (adopted F02)
Calculus, 6th Ed., by Larson, Hostetler & Edwards (adopted S98)
Calculus by Zill (adopted F92)

COURSE OBJECTIVES:
1.  To develop an understanding of the calculus as an integrated part of the field of mathematics.
2.  To promote an appreciation for calculus as a useful tool in problem solving and also as a topic in mathematics worthy of study.
3.  To develop skill in approaching and solving problems through analysis, synthesis, and judgment.
4.  To show the value of proof through the use of inductive and deductive reasoning.
5.  To help the student gain confidence in the ability to recognize and solve problems (through a wide variety of practice in problem situations).
6.  To help the student find application in his chosen field.
7.  To have the student develop a broad and thorough understanding of limits and the derivative.

COURSE OUTLINE:
1.  Limits
   - Limit of a Function
   - Definition of a Limit
   - Limit Properties
   - Continuity of a Function
2.  Derivatives
   - Definition of Derivative
   - Differentiation Formulas
   - Derivatives of Trig Functions
   - The Chain Rule
   - Implicit Differentiation
   - Higher Derivatives
   - Related Rate Problems
   - The Differential
   - Max/Min Values
- First and Second Derivative Tests
- Concavity and Points of Inflection
- Curve Sketching
- Applied Max/Min Problems

3. Integration
   - Antidifferentiation Procedures
   - Sigma Notation
   - Area Under a Curve by Summation Methods
   - The Definition of the Definite Integral
   - Properties of the Definite Integral
   - The Fundamental Theorem of Calculus
   - Areas Between Curves Using the Definite Integral
   - Applications of the Definite Integral