Miami Dade College

Course Description

MAC2233 | Business Calculus | 3.00 credits

This course introduces the basic concepts of differential and integral calculus for students majoring in business administration and related fields. Topics include limits, continuity, differentiation and integration of polynomials, logarithmic and exponential functions with applications to business, economics, and the life sciences. Computational course.

Course Competencies:

Competency 1: The student will demonstrate knowledge of limits by:

1. Evaluating limits of algebraic, logarithmic, and exponential functions.
2. Determining where a function is continuous or discontinuous.

Competency 2: The student will demonstrate knowledge of differentiation of algebraic, logarithmic, and exponential functions by:

1. Applying the fundamental rules of differentiation.
2. Using derivatives to find the slope of a tangent line.
3. Applying the chain rule for differentiation.
4. Using implicit differentiation.

Competency 3: The student will demonstrate knowledge of curve sketching of algebraic, logarithmic, and exponential functions by:

1. Using the first derivative to determine the intervals of increase or decrease as well as the relative extrema.
2. Using the second derivative to determine the concavity of functions.
3. Applying the second derivative test to determine absolute maxima and minima.
4. Using calculus to draw the graphs of functions.

Competency 4: The student will demonstrate knowledge of applications of derivatives by:

1. Solving rate of change problems.
2. Solving optimization problems.
3. Using differentials to approximate the change in functions.
4. Solving problems involving marginal analysis.
5. Solving problems involving related rates.

Competency 5: The student will demonstrate knowledge of the integration of algebraic, logarithmic, and exponential functions by:

1. Applying the fundamental rules of integration.
2. Using substitution to find indefinite integrals.
3. Evaluating definite integrals.
4. Using definite integrals to find areas between curves.

Learning Outcomes:

- Communicate effectively using listening, speaking, reading, and writing skills
- Use quantitative analytical skills to evaluate and process numerical data
- Solve problems using critical and creative thinking and scientific reasoning
- Formulate strategies to locate, evaluate, and apply information
- Create strategies that can be used to fulfill personal, civic, and social responsibilities