Miami Dade College
MAC 2233 Business Calculus
Draft 1

MAC2233
Business Calculus 3 credits

Course Description

This is a survey of differential and integral calculus. Topics include: limits, continuity, differentiation and integration of algebraic, logarithmic and exponential functions; applications to business, life sciences, and social sciences. Pre-requisite: MAC 1105 with a grade of C or better or equivalent.

Course Competencies:

Competency 1: The Student will demonstrate knowledge of limits of algebraic, logarithmic, and exponential functions by:

a. evaluating limits using table of approximating values.
b. evaluating limits using graphs.
c. determining where a function is continuous or discontinuous.
d. evaluating limits algebraically.

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

a. applying the fundamental rules of differentiation.
b. using derivatives to find the equation of a tangent line.
d. applying the chain rule for differentiation.
e. using implicit differentiation.

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

a. using the first derivative to determine the interval of increase or decrease.
b. using the first derivative to determine the relative extrema of functions.
c. using the second derivative to determine the concavity of functions.

d. using the second derivative to determine points of inflection.
e. applying first or second derivative to determine the absolute maxima and minima.
f. finding asymptotes.
g. using calculus to draw the graphs of functions.

Competency 4: The Student will demonstrate knowledge of applications of derivatives to business, life sciences, and social sciences by:

a. solving rate of change problems.
b. solving optimization problems.
c. using differentials to approximate the change in functions.
d. solving problems involving marginal analysis.
e. using graph of real data to determine and interpret rates of change, maxima and minima.
f. interpreting numerical results.

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

a. applying the fundamental rules of integration.
b. using substitution to find indefinite integrals.
c. evaluating definite integrals.
d. using definite integrals to find areas between curves.