

BUSINESS CALCULUS DESCRIPTOR

General Course Description:

Presents a study of the techniques of calculus with emphasis placed on the application of these concepts to business and management related problems. The applications of derivatives and integrals of functions including polynomials, rational, exponential and logarithmic functions are studied.

Course Content:

1. Functions and their graphs, including exponential and logarithmic functions;
2. Limits and intuitive limit definition of derivative;
3. Increments, tangent lines, and rate of change;
4. Rules of differentiation including sum, product, quotient, and the chain rule;
5. Implicit differentiation;
6. Applications of differentiation such as marginal analysis, optimization, and curve sketching;
7. Antiderivatives, indefinite and definite integrals;
8. Multiple techniques of integration including substitution;
9. Area between curves;
10. Approximating definite integral as a sum; and
11. Applications of integration in business and economics.

Course Objectives: *Upon successful completion of the course, students will be able to:*

1. Find the derivatives of polynomial, rational, exponential, and logarithmic functions;
2. Find the derivatives of functions involving constants, sums, differences, products, quotients, and the chain rule;
3. Sketch the graph of functions using horizontal and vertical asymptotes, intercepts, and first and second derivatives to determine intervals where the function is increasing and decreasing, maximum and minimum values, intervals of concavity and points of inflection;
4. Analyze the marginal cost, profit and revenue when given the appropriate function;
5. Determine maxima and minima in optimization problems using the derivative;
6. Use derivatives to find rates of change and tangent lines;
7. Use calculus to analyze revenue, cost, and profit;
8. Find definite and indefinite integrals by using the general integral formulas, integration by substitution, and other integration techniques; and
9. Use integration in business and economics applications.

Methods of Evaluation:

Tests, examinations, homework or projects where students demonstrate their mastery of the learning objectives and their ability to devise, organize and present complete solutions to problems.

Sample Textbooks, Manuals, or Other Support Materials

A college level textbook supporting the learning objectives of this course.

Date: 12-15-12