

**Course Objectives/Course Outline**  
**Spokane Community College**

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**Course Title:** Business Calculus

**Prefix and Course Number:** MATH& 148

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**Course Learning Outcomes:**

**By the end of this course, a student should be able to:**

- Communicate mathematical ideas in both everyday and mathematical language using appropriate vocabulary and notation.
- Demonstrate the understanding and interpretation of Limits, Rates of Change, and Continuity.
- Apply techniques for finding derivatives including the Power, Product, Quotient, and Chain Rules.
- Demonstrate the ability to use derivatives to determine when functions are increasing, decreasing, concave up, concave down, and explain the nature of their graphs.
- Demonstrate the ability to find and interpret Relative and Absolute Extrema and use extrema to solve applications.
- Demonstrate the ability to find derivatives using Implicit Differentiation and solve Related Rate problems.
- Find the derivatives of exponential and logarithmic functions and apply these to applications.
- Demonstrate the understanding and interpretation of Integrals including the Fundamental Theorem of Calculus.
- Apply integration techniques for both definite and indefinite integrals.
- Find the area between two curves.

**Course Outline:**

- I. The Derivative
  - A. Limits
  - B. Rates of change
  - C. Definition of derivative
  - D. Techniques for finding the derivative
  - E. Products and quotients
  - F. The chain rule
  - G. Continuity and differentiability
- II. Applications
  - A. Increasing and decreasing functions
  - B. Relative and absolute extrema
  - C. Concavity and the second derivative tests
  - D. Graphing
  - E. Applications of extrema
  - F. Business applications
  - G. Implicit differentiation
  - H. Related rates
  - I. Differentials
- III. Exponential and Logarithmic Functions
  - A. Definitions and graphs
  - B. Derivatives
  - C. Applications

IV. Integration

- A. Antiderivatives
- B. Substitution
- C. Area
- D. The Fundamental Theorem of Calculus
- E. Area between two curves