BAKER COLLEGE
STUDENT LEARNING OUTCOMES

MTH 2510 Calculus II
4 Semester Credit Hours

Student Learning Outcomes and Enabling Objectives

1. Solve application problems involving exponential and logarithmic functions.
    a. Solve logarithmic and exponential functions.
    b. Apply appropriate rules for differentiation and integration of logarithmic and exponential functions.
2. Examine techniques involving integration.
    a. Manipulate algebraic quantities.
    b. Apply integration by parts.
    c. Evaluate partial fractions.
    d. Use trigonometric identities.
    e. Apply integration techniques.
3. Apply integration techniques.
    a. Find the area between two curves or the volume of a solid.
    b. Find the arc length and area of a surface of revolution.
    c. Find moments and center of mass.
    d. Calculate force and fluid pressure using integrals.
4. Evaluate an infinite series.
    a. Test sequences for convergence or divergence.
    b. Find the coefficients of a Taylor or Maclaurin polynomial.
    c. Write a power series.
    d. Find the radius and interval of convergence.
5. Apply the techniques of calculus to conic sections, parametric equations, and polar coordinates.
    a. Describe conic sections using second degree equations.
    b. Manipulate parametric equations.
    c. Graph functions using polar equations.
    d. Recognize graphs of polar equations limacon, rose curves, or any conics.
    e. Describe the motion of a particle in space.

6. Analyze vector valued functions
    a. Examine vector properties, specifically unit and position vectors.
    b. Find the dot product of two vectors.
    c. Find the cross product of two vectors.

Big Ideas and Essential Questions

Big Ideas

- Integration
- Application of Calculus techniques to infinite series, conic sections, parametric equations, and vector valued functions.

Essential Questions

1. How do integration techniques help me calculate the area of a graph that is bounded by non-linear functions?
2. How do Calculus techniques allow me to analyze series and two dimensional figures?

These SLOs are not approved for experiential credit.

Effective: Fall 2020