BAKER COLLEGE
STUDENT LEARNING OUTCOMES

EDU 2120 Geometric and Statistical Concepts for Educators

3 Semester Hours

Student Learning Outcomes and Enabling Objectives

1. Calculate simple and compound probability.
2. Analyze statistical data.
    a. Create statistical displays such as bar charts, pie charts, and boxplots.
    b. Calculate measures of central tendency, variation, and percentiles.
    c. Solve problems using the normal curve as a model for the population.
3. Evaluate foundational two-dimensional and three-dimensional figures.
    a. Classify angles by measure and position.
    b. Apply properties of angles in two-dimensional geometry.
    c. Classify polygons based on angles and sides.
    d. Apply properties of circles and polygons.
    e. Measure sides and angles of basic geometric shapes.
    f. Identify symmetry and congruence in basic geometric shapes.
    g. Identify similarities between basic two-dimensional and three-dimensional geometric shapes.
4. Describe the basic transformations such as translation, rotation, reflection, and dilation.
    a. Explain how a transformation ensures congruence or similarity.
    b. Create tessellations.
5. Calculate the perimeter and area of two-dimensional geometric shapes.
    a. Find the perimeter of polygons and the circumference of circles.
    b. Find the area of polygons and circles.
    c. Find the standard equation of a circle using the Pythagorean Theorem.
6. Find the area and volume of three-dimensional geometric figures.
    a. Calculate surface area of three-dimensional figures.
    b. Calculate volume of three-dimensional figures.
7. Demonstrate verbal and written mathematical communication skills.
    a. Express statistical concepts using appropriate terms and notation.
    b. Express geometrical concepts using appropriate terms and notation.
8. Incorporate technology in math education.
    a. Critique current peer-reviewed literature regarding the use of technology to enhance elementary mathematics education in geometry and statistics based on nationally recognized standards for mathematics and the use of technology.
    b. Demonstrate the use of the following technology tools.
        i. Standard and graphing calculators (such as TI 71, TI 83+, or TI 84+)
        ii. Interactive whiteboard technology

iii. Alternative forms of technology, such as manipulatives or other low-tech devices (such as Elmo, overhead projectors, interactive electronic games, etc.)
iv. GeoGebra

Big Ideas and Essential Questions

Big Ideas

- Probability
- Statistics
- Two- and three-dimensional geometry

Essential Questions

1. How does statistical reasoning help me interpret a set of data?
2. How does an understanding of geometry help me describe the world around me?

These SLOs are not approved for experiential credit.

Effective: Fall 2017