math217 Syllabus

Math 217: Geometry and Measurement For PK-8 Teachers

Text: *Mathematics for Elementary Teachers with Activities 5th Edition*, by Sybilla Beckmann, McGraw Hill

Prerequisites: Completion of MATH 117 and MATH 107/105/103 with a grade of C or better. Restriction: Education majors only.

Course Description:
The content in this course aligns with that of K-8 schools, giving prospective teachers the knowledge of mathematics that they will need to effectively teach standards and content specified by both NCTM and CCSS. Applications of measurement and geometry with a focus on understanding and explaining mathematical concepts. Systems of measurement, plane figures, properties of polygons, three dimensional figures, area and perimeter, volume and surface area, geometric patterns, estimation, problem solving, and number concepts integrated within real world situations.

Sections and Topics

- 7.1 Motivating and Defining Ration and Proportional Relationships
- 7.2 Solving Proportion Problems by Reasoning with Multiplication and Division
- 7.3 The Values of a Ratio: Unit Rates and Multipliers
- 7.6 Percent Revisited: Percent Increase and Decrease
- 10.1 Lines and Angles
- 10.2 Angles and Phenomena in the World
- 10.3 Circles and Spheres
- 10.4 Triangles, Quadrilaterals, and Other Polygons
- 11.1 Concepts of Measurement
- 11.2 Length, Area, Volume, and Dimension
- 11.3 Error and Precision in Measurement
- 11.4 Converting from One Unit of Measurement to Another
- 12.1 Areas of Rectangles Revisited
- 12.2 Moving and Additivity Principles About Area
- 12.3 Areas of Triangles
- 12.4 Areas of Parallelograms and Other Polygons
- 12.5 Shearing: Changing Shapes Without Changing Area
- 12.6 Area and Circumference of Circles and the Number Pi
- 12.7 Approximating Areas of Irregular Shapes
- 12.8 Contrasting and Relating the Perimeter and Area of Shapes
- 12.9 Using the Moving and Additivity Principles to Prove the Pythagorean Theorem
- 13.1 Polyhedra and Other Solid Shapes
- 13.2 Patterns and Surface Area

Last updated 30 October 2020.