Course Title:	Mathematics for Elementary Education II
Prefix and Course Number:	MATH 212

Course Learning Outcomes:
By the end of this course, a student should be able to:

- Organize information and present it in appropriate pictorial schemas.
- Analyze data, graphs, and statistics.
- Calculate simple probabilities, probabilities with permutations and combinations, and differentiate between them.
- Calculate odds, conditional probabilities, expected values and design simulations.
- Analyze properties of geometric shapes, including lines, angles, polygons, tessellations, and three-dimensional objects.
- Compute length, perimeter and area of two-dimensional objects; surface area and volume of three-dimensional objects.
- Demonstrate knowledge of the concepts of Euclidean geometry, especially congruence and similarity.
- Draw Euclidean constructions using a straight edge and compass.
- Use Coordinate geometry to find coordinates, distance, slope, and equations; use equations to draw graphs on the coordinate plane.
- Do the standard transformations of rotation, reflection, translation, magnifications, dilations, and dilatations.
- Use technology to explore geometric concepts.
- Communicate mathematical ideas in both everyday and mathematical language, using appropriate vocabulary and notation.
- Judge the reasonableness of a solution or answer, and justify all processes used.

Course Outline: Units 1-5 required.

I.   Statistics
      A. Be able to represent and interpret data using graphs
      B. Use the vocabulary of central tendency and variation
      C. Find measures of central tendency
      D. Represent data using a variety of plot and graph types
      E. Understand normal distributions and analyze standardized test scores

II.   Probability
      A. Use vocabulary related to probability
      B. Use experimental and theoretical probabilities to solve problems
      C. Use the vocabulary related to combinations and permutations
      D. Use combinations and permutations to solve problems

III. Geometry
      A. Use the vocabulary and basic relationships of points, lines, planes, and angles
      B. Use the vocabulary and basic relationships related to polygons and 2 dimensional figures
      C. Use the vocabulary related to three-dimensional figures

IV.   Motion Geometry
  - A. Use the vocabulary of mappings, congruence, symmetry, and similarity
  - B. Perform translations, reflections, and rotations on geometric figures
  - C. Describe symmetries of an object
  - D. Use the properties of similarity to solve problems

V.   Measurement
  - A. Understand and use the English and metric systems of measurement
  - B. Determine perimeter and areas of two dimensional objects
  - C. Determine surface area and volume of three dimensional objects