**Math 1351 – Foundations of Mathematics II**

**Mathematical Reasoning for Elementary School Teacher**



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**Catalog Description:**
This is designed specifically for students who seek elementary and middle school teacher certification. Topics include set theory, functions, numerations systems, number theory, emphasis on problem solving and critical thinking.

**Course Learning Outcomes:**
The student will:

* Explore the geometric attributes of physical objects in order to classify and to form definitions.
* Analyze spatial characteristics such as direction, orientation, and perspective.
* Connect geometric ideas to numbers and measurement.
* Use geometric models to solve problems.
* Explore and understand measurement and estimation.
* Analyze data and statistics.
* Use probability with simple and complex experiments.
* Understand surface area and volume through discovery.

**Book Sections**

Chapter 9

9.1 Graphical Representation of Data

9.2 Measures of Central Tendency and Variability

9.3 Statistical Inference and Sampling

Chapter 10

10.1 Empirical Probability

10.2 Principles of Counting

10.3 Permutations and Combinations

10.4 Theoretical Probability

Chapter 11

11.1 Figures in the Plane

11.2 Curves and Polygons in the Plane

11.3 Figures in Space

11.4 Networks

Chapter 12

12.1 The Measurement Process

12.2 Area and Perimeter

12.3 The Pythagorean Theorem

12.4 Surface Area and Volume

Chapter 13

13.1 Rigid Motions and Similarity Transformations

13.2 Patterns and Symmetries

13.3 Tilings and Escher-like Design

Chapter 14

14.1 Congruent Triangles

14.2 Constructing Geometric Figures

14.3 Similar Triangles