

SUGGESTED COURSE OUTLINE FOR MATH 144 MATHEMATICS FOR ELEMENTARY SCHOOL TEACHERS II

INSTRUCTOR: Vivian LaFerla

TEXT:

Musser, Burger, and Peterson, Mathematics for Elementary Teachers, Seventh Edition, Wiley, 2006.

CHAPTER 10: STATISTICS

2 WEEKS

The “big” ideas in descriptive statistics are: shape (what do the data look like?), center (how does one summarize data similarity with a single value?), and spread (how does one summarize data variability with a single value?). The text includes data for single variable and some two-variable situations.

10.1 Organizing and Picturing Information

You should cover stem and leaf and scatter plots as well as some of the other types of graphs. You should find a balance between constructing graphs and interpreting them as well as identifying the advantages/disadvantages of each kind.

10.2 Analyzing Data

Cover mode, median, mean, range, quartiles, percentiles, inter-quartile range (IQR), and box and whisker plots. Standard deviation and the normal distribution are optional.

10.3 Misleading Graphs and Statistics

This optional section could be assigned for reading.

CHAPTER 11: PROBABILITY

3 WEEKS

11.1 Probability and Simple Experiments

Cover the basic definition of probability, impossible and certain events, experimental and theoretical probability, mutually exclusive events, and the properties of probability.

11.2 Probability and Complex Experiments

Cover the fundamental counting principle, tree diagrams, and the additive and multiplicative properties of probability. Note: Pascal’s triangle is optional.

11.3 Additional Counting Techniques

Cover problems involving factorials, permutations, and combinations. Once again, Pascal's triangle is optional.

- 11.4 Simulation, Expected Value, Odds, and Conditional Probability
Cover Odds and Conditional Probability, however. Simulations and expected value are optional.

Chapters 12 & 13 are the "meat" of the geometry portion of the course and should be covered in their entirety. These two chapters offer numerous opportunities for in-class activities, use of manipulatives, and cooperative learning.

CHAPTER 12: GEOMETRIC SHAPES **3 WEEKS**

- 12.1 Geometric Shapes and Definitions
- 12.2 Analyzing Shapes
- 12.3 Properties of Geometric Shapes
- 12.4 Regular Polygons and Tessellations
- 12.5 Three Dimensional Shapes

CHAPTER 13: MEASUREMENT **3 WEEKS**

- 13.1 Measurement with Standard & Nonstandard Units
- 13.2 Length and Area
- 13.3 Surface Area
- 13.4 Volume

CHAPTER 14: TRIANGLE CONGRUENCE AND SIMILARITY **1 WEEK**

- 14.1 Congruence of Triangles
- 14.2 Similarity of Triangles

Cover the various cases of congruency and similarity, SAS, ASA, SSS, AAA, etc., **without formal proofs**. Stress identifying which case of congruency or similarity applies and only cover applications that result in numerical answers. Omit Euclidean constructions and geometric problem solving.

CHAPTER 15: GEOMETRY USING COORDINATES **1 WEEK**

- 15.1 Distance and Slope
- 15.2 Equations and Coordinates (**IF TIME PERMITS**)

Cover the distance formula, the midpoint formula, slope, parallel and perpendicular lines, the Pythagorean Theorem and applications of each.

SUB-TOTAL = 13 WEEKS
EXAMS = 1 WEEK

TOTAL = 14 WEEKS