

**Course Objectives/Course Outline**  
**Spokane Community College**

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**Course Title:** Math in Society

**Prefix and Course Number:** MATH& 107

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**Course Learning Outcomes:**

**By the end of this course, a student should be able to:**

- Specify sets using proper notation.
- Use Venn diagrams to illustrate set relationships and to solve survey problems.
- Perform set operations such as union, intersections, complements and difference.
- Build a linear model using a point and slope or two points.
- Use the line best fit to model real-life data.
- Use exponential equations to model and describe growth.
- Solve problems using ratios and proportions.
- Solve problems involving geometric and arithmetic sequences.
- Use the simple and compound interest formulas to find the amount of interest and future value.
- Compute credit card balances using several methods.
- Calculate present and future value of an annuity.
- Construct an amortization schedule.
- Apply the Fundamental Counting Principle.
- Calculate applied problems using combinations and permutations.
- Use several methods to calculate probabilities including: counting, permutations and combinations, complements and unions, conditional probability, intersections, and independence.
- Calculate expected value.
- Apply measures of central tendency to compute data.
- Apply standard deviation formula and explain how it is used to describe the spread of data.
- Apply the basic properties of the normal curve to applied problems.

**Course Outline:**

**COURSE OBJECTIVES:**

Units one through four form our core. Each unit may be elaborated more than indicated.

At least one additional topic must be covered from units five through eight. Units selected may vary at the discretion of the instructor. Problem solving skills will be integrated throughout each of the core topics.

Units 1-4 are REQUIRED:

- I. Consumer Finance
  - A. Sales Tax
  - B. Percent Increase/Decrease
  - C. Interest and exponential growth
  - D. Annuities
  - E. Loans
  - F. Amortization schedules

- II. Probability
  - A. Probability and odds
  - B. Counting principles
  - C. Calculating probabilities
  - D. Expected value
- III. Statistics
  - A. Frequency distributions
  - B. Measures of central tendency
  - C. Measures of dispersion
  - D. Data analysis
- IV. Modeling with Algebra
  - A. Interpretation of Slope
  - B. Linear Models
  - C. Exponential Models
  - D. Arithmetic and Geometric Sequences
  - E. Variation

You Must Select at Least ONE Additional Topic. Suggested Topics Include:

- V. Logic-Problem Solving
  - A. Statements and definitions
  - B. Problem solving
  - C. Inductive and deductive reasoning
  - D. Symbolic logic and truth tables
- VI. Set Theory
  - A. Definitions and operations
  - B. Problem Solving
  - C. Venn Diagrams
  - D. Survey Problems
- VII. Mathematics and Art
  - A. Proportion and order
  - B. Symmetry and patterns
  - C. Tilings/tesselations/fractals
- VIII. Additional Topics: Number Theory, Geometry, Graph Theory, Voting and Apportionment, Linear Programming, etc.