­WINONA STATE UNIVERSITY

COLLEGE OF SCIENCE AND ENGINEERING

DEPARTMENT OF MATHEMATICS AND STATISTICS

**Course Outline – MATH 050**

**Course Title:** Intermediate Algebra

**Number of Credits:** 3

**Course Description:** A review of pre-algebra and intermediate algebra topics designed to prepare the student for college-level mathematics. MATH 050 is a non-degree credit course and will not count toward meeting minimum total credit requirements for graduation. P/NC only. Offered every semester.

**Possible Textbooks:** ALEKS Pre-Algebra (electronic instruction system)

**Topics Covered:**

1. Whole Numbers
   1. Arithmetic
   2. Ordering and Rounding
   3. Exponents and Order of Operations
   4. Prime Numbers, Factors, and Multiples
2. Fractions
   1. Equivalent Fractions
   2. Ordering
   3. Arithmetic
   4. Mixed Numbers
3. Decimals and Proportions
   1. Ordering
   2. Converting Between Fractions and Decimals
   3. Arithmetic
   4. Ratios, Rates, and Percentages
4. Measurement
   1. Customary Units
   2. Metric Units
   3. Time and Temperature
   4. Converting Between Customary and Metric
5. Real Numbers
   1. Real Numbers
   2. Operations with Real Numbers
   3. Square Roots
6. Algebraic Equations
   1. Algebraic Expressions
   2. Properties of Equality
   3. Solving Equations
   4. Applications of Linear Equations
7. Graphs of Linear Equations
   1. Ordered Pairs and Equations in Two Variables
   2. Graphing
8. Statistics and Probability
   1. Tables and Graphs of Data
   2. Mean, Median, and Mode
   3. Probability
9. Geometric shapes
   1. Lines and Angles
   2. Triangles
   3. Polygons and Quadrilaterals
   4. Circles
   5. Similarity
10. Geometric measurement
    1. Areas of Rectangles with Same Perimeter
    2. Volume and Surface Area
    3. Indirect Measurement
11. Exponents and Polynomials
    1. Properties of Exponents
    2. Scientific Notation
    3. Polynomials

**Listing of Sections in Departmental Text to be Covered (ALEKS Pre-Algebra):**

A selection of topics from the ALEKS Pre-Algebra course that correspond to the topics above. The list of topics will be kept on file by the department office manager.

**Remarks:** N/A.

**Approximate Pace of Coverage:** This course is self-paced, but students should complete about 35 topics per week to finish on time.

**Method of Instruction:** Students work together and independently on course material using ALEKS software under the supervision of the instructor.

**Evaluation Procedure:** ALEKS Pre-Algebra Final Assessment.

**Minnesota Transfer Curriculum:** Not Applicable

**MnSCU Learning Outcomes:**

* Students will demonstrate the ability to perform arithmetic on the natural, rational, and real numbers.
* Students will demonstrate the ability to use customary and metric units, perform unit conversions, and use scientific notation.
* Students will demonstrate the ability to solve and apply linear equations.
* Students will demonstrate the ability to solve and graph systems of two linear equations in two variables.
* Students will demonstrate the ability to compute and interpret the mean, median, and mode.
* Students will demonstrate the ability to compute perimeters, areas, and volumes of simple geometric figures.
* Students will demonstrate the ability to use exponent rules and perform arithmetic with polynomials.

**Last Revised:** Fall 2017 by the Mathematics Subgroup