MINNESOTA WEST COMMUNITY & TECHNICAL COLLEGE
COURSE OUTLINE

Faculty are required to have the outline submitted to the Academic Affairs Office. The course outline is
the form used for approval of new courses by the Collegewide Curriculum Committee.

DEPT.: MATH                        COURSE NO.: 0098

NUMBER OF CREDITS: 2

COURSE TITLE: Higher Algebra I

CATALOG DESCRIPTION: Teaches basic algebraic concepts and skills including real number properties,
 algebraic expressions, solving equations and inequalities, graphs of linear equations, exponents and scientific
 notation. This course is not considered a transfer course.

AUDIENCE: Likely offered as instructor led, ITV or Internet

FULFILLS MN TRANSFER CURRICULUM AREA(S) (Leave blank if not applicable)
Area : by meeting the following competencies:
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PREREQUISITES OR NECESSARY ENTRY SKILLS/KNOWLEDGE:
Math 0092 or one year high school algebra or placement by Accuplacer.

LENGTH OF COURSE: One semester or alternative format of 1/2 semester.

THIS COURSE IS USUALLY OFFERED:
Every other year  fall  spring  summer  undetermined

Four goals are emphasized in course at Minnesota West Community & Technical College:

1) ACADEMIC CONTENT:
   a) To develop adequate basic algebra skills to solve problems in a more general way to enhance
      arithmetic methods.
   b) To bridge the gap between elementary algebra and more advanced courses in precalculus
      mathematics.
   c) To introduce necessary metric geometry ideas and practice skills.
   d) To learn a skill, then use the skill to help solve equations and inequalities, and then use
      equations and inequalities to solve word problems.

2) THINKING SKILLS:
   a) Developing problem solving strategies.
   b) Using simple mathematical models to understand patterns.
   c) Exploring problems from real-world situations.
d) Focusing on logical, observational, insightful, and evaluative thinking.

3) COMMUNICATIONS SKILLS:
   a) Oral interpretation of problems.
   b) Writing concise solution papers to mathematical exercises and problems.
   c) Group problem solving.
   d) Using short writes for expressing mathematical ideas and definitions.

4) HUMAN DIVERSITY:
   a) Working in small groups at times to experience ways diverse persons solve mathematical problems.
   b) Switching the groups often to enhance each person’s point of view.

TOPICS TO BE COVERED:
1) Properties of integers, real numbers and rational numbers, fractions and decimals, exponential notation and order of operations.
2) Solving equations and inequalities, formulas and applications
3) Graphs of linear functions including the concepts of slope, intercepts, equations of lines and mathematical modeling.
4) Properties of exponents including multiplying, dividing, raising a power to a power and scientific notation

LIST OF EXPECTED COURSE OUTCOMES:
1) Establish the properties, operations and applications of real numbers
2) Apply algebraic methods to solve linear equations and inequalities
3) Explore the graphs of lines and interpret the slope and intercepts
4) Evaluate and perform operations with exponents and use scientific notation
5) Apply key concepts to application problems

LEARNING/TEACHING TECHNIQUES used in the course are:
- Collaborative Learning
- Problem Solving
- Interactive Lectures
- Individual Coaching
- Films/Videos/Slides
- Other (describe below)

ASSIGNMENTS AND ASSESSMENTS FOR THIS CLASS INCLUDE:
- Reading
- Tests
- Individual Projects
- Oral Presentations
- Worksheets
- Collaborative Projects
- Textbook Problems
- Papers
- Portfolio
- Group Problems
- Term Paper
- Other (describe below)

EXPECTED STUDENT LEARNING OUTCOMES:
Students will be able to
   1a. Evaluate and translate algebraic expressions.
   1b. Perform operations with real numbers.
   1c. Define and discuss properties of real numbers
   1d. Apply order of operations
   2a. Define a solution and determine if a value is a solution
   2b. Apply the addition and/or the multiplication principle to solve equations.
   2c. Evaluate and rearrange formulas
   2d. Calculate percents and solve related problems
   2e. Apply principles to solve inequalities
   3a. Investigate the Cartesian Plane and plot points
   3b. Graph linear equations and determine the intercepts
   3c. Define and interpret the slope for an equation of a line
   4a. Evaluate exponential expressions
   4b. Perform multiplication, division and apply the power rule to exponents
   4c. Convert to and from scientific notation
   4d. Multiply and divide using scientific notation
   5a. Solve application problems using properties of real numbers and order of operations
   5b. Apply and manipulate formulas to determine their optimal application
   5c. Graph and interpret applied data
   5d. Use scientific notation to solve application problems

The information in this course outline is subject to revision

To receive reasonable accommodations for a documented disability, please contact the campus Student Services Advisor or campus Disability Coordinator as arrangements must be made in advance. In addition, students are encouraged to notify their instructor.

Veteran Services: Minnesota West is dedicated to assisting veterans and eligible family members in achieving their educational goals efficiently. Active duty and reserve/guard military members should advise their instructor of all regularly scheduled military appointments and duties that conflict with scheduled course requirements. Instructors will make every effort to work with the student to identify adjusted timelines. If you are a veteran, please contact the Minnesota West Veterans Service Office.

This document is available in alternative formats to individuals with disabilities by contacting the Student Services Advisor or by calling 800-658-2330 or Minnesota Relay Service at 800-627-3529 or by using your preferred relay service.

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