

NORTHWEST-SHOALS COMMUNITY COLLEGE
General Course Syllabus

TITLE OF COURSE: Elementary Algebra (MTH098)

DIVISION: Mathematics, Science and Technologies Division

COURSE DESCRIPTION: This course is a review of the fundamental arithmetic and algebra operations. The topics include the numbers of ordinary arithmetic and their properties; integers and rational numbers; the solving of equations; polynomials and factoring; and an introduction to systems of equations and graphs.

HOURS:

Credit: 3 **Contact:** 3 **Lecture:** 3 **Clinical:** 0 **Lab:** 0

PREREQUISITE(S): MTH 090 or appropriate math placement score.

CO-REQUISITE(S): None

ONLINE TEXTBOOK (REQUIRED): MyMathLab *Beginning and Intermediate Algebra* by Lial, Hornsby, and McGinnis, 4th ed., 2008. The student access code for the online textbook can be purchased online or in the NW-SCC bookstore. Obtain the course ID number from your instructor.

TEXTBOOK (REQUIRED): *Beginning and Intermediate Algebra* by Lial, Hornsby, and McGinnis, 4th ed., 2008. A textbook/access code package may be purchased in the bookstore.

VOCABULARY SHEETS: (REQUIRED): May be purchased in the bookstore.

SUPPLIES: A notebook binder exclusively for math work is required. Students are required to bring their math notebook to class time and lab time and work problems orderly in the notebook. Scientific calculators are recommended. Graphing calculators are not allowed. There is also a calculator available within the software. Students ID's are required for entrance into the math lab.

GENERAL EDUCATIONAL OBJECTIVE:

All associate degree graduates should be able to use the mathematical concepts, notations, and manipulations needed to their field of study or occupation. (3)

COURSE OBJECTIVES: Upon successful completion of Elementary Algebra, the student should be able to:

1. Add, subtract, multiply and divide rational numbers.

2. Simplify, and evaluate variable expressions.
3. Solve first degree equations in one variable.
4. Use formulas and solve formulas for specified variables.
5. Solve application problems by writing an equation in one variable and solving that equation.
6. Graph first degree equations in two variables on a rectangular Cartesian coordinate system.
7. Solve systems of linear equations.
8. Use the product, quotient, and power rules to simplify expressions with integer exponents.
9. Add, subtract, multiply, and divide polynomials.
10. Factor polynomials over the set of integers.

METHODS OF EVALUATION:

A. Course Grade Evaluation: (Minimum of 4 measurements)

A comprehensive final exam will be given and counted toward the student's final average. Make-up examinations, as such, will not generally be given.

B. Evaluation of General Educational Objectives: Student success on the General Educational Objective (3) is measured by student performance on each of the course objectives, which require use of mathematical concepts, notations, and manipulations. Performance on each course objective will be evaluated using appropriate problems from the final exam. Results will be tallied for each course objective.

C. Use of Findings: Instructors will analyze data gathered from the assessment(s) for each course objective and changes will be made based on identified weaknesses. The math department will meet once every two years to discuss findings and implement strategies to improve department and student performance.

OUTLINE OF COURSE TOPICS:

- I. Real Numbers and Their Basic Properties
 - A. Operations on Fractions
 - B. Exponents, Order of Operations, and Inequality
 - C. Variables, Expressions and Equations
 - D. Real Numbers and the Number Line
 - E. Adding and Subtracting Real Numbers
 - F. Multiplication and Division of Real Numbers
 - G. Properties of Real Numbers
 - H. Simplifying Algebraic Expressions

- II. Equations and Inequalities
 - A. Addition Property of Equality
 - B. Multiplication Property of Equality
 - C. Solve Equations Involving multiple steps
 - D. Applications, Formulas, and Literal Equations
 - E. Ratio and Proportion
 - F. Solving Inequalities
- III. Exponents and Polynomials
 - A. The Product, Power, and Quotient Rules for Exponents
 - B. Adding and Subtracting Polynomials
 - C. Multiplying Polynomials
 - D. Division of Polynomials
- IV. Factoring Polynomials
 - A. Factoring out the Greatest Common Factor and Factoring by Grouping
 - B. Factoring Trinomials
 - C. Factoring the Difference of Two Squares
 - D. Solving Equations by Factoring
- V. Graphing and Solving Systems of Equations
 - A. Linear Equations in Two Variables
 - B. Graphing Linear Equations
 - C. Slope
 - D. Equations of a Line
 - E. Solving Systems of Equations

AMERICANS WITH DISABILITIES ACT POLICY: It is the policy of Northwest-Shoals Community College to comply with the Americans with Disabilities (ADA) Act. Any student covered under this act needing and desiring reasonable accommodations for this class should notify Linda Waide at 331-5321. See NWSCC catalog for additional details.

WITHDRAWAL POLICY: A student who is unable to complete a course is expected to withdraw from that course by the end of 60% of class meetings. A student who withdraws by the date published in the schedule will receive a grade of “W” for the course. This withdrawal is done only by student request. The grade of “W” is allowed regardless of the student’s grades to the point of withdrawal.