

NORTHWEST-SHOALS COMMUNITY COLLEGE
General Syllabus
Mathematics, Science & Technologies Division

TITLE OF COURSE: Intermediate College Algebra (MTH100)

COURSE DESCRIPTION: This course provides a study of algebraic techniques such as linear equations and inequalities, quadratic equations, systems of equations, and operations with exponents and radicals. Functions and relations are introduced and graphed with special emphasis on linear and quadratic functions. This course does not apply toward the general core requirement for mathematics in the AA or AS degree programs.

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

PRE-REQUISITE(S): Successfully complete MTH092, MTH098, or higher or appropriate mathematics 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 successfully completing Intermediate College Algebra, the student should be able to:

1. Solve linear and absolute value equations.
2. Solve inequalities and compound inequalities.
3. Solve literal equations and application problems.

4. Define and identify ordered pairs, relations, functions and evaluate functions.
5. Write and graph linear equations in two variables.
6. Solve systems of linear equations.
7. Add, subtract, multiply and divide rational expressions, simplify complex fractions, and solve equations containing rational expressions.
8. Simplify expressions with rational exponents using the product, quotient, and power rules for exponents.
9. Simplify, add, subtract, multiply and divide radical expressions, rationalize denominators, and solve equations involving radical expressions.
10. Graph quadratic functions, and find complex number solutions,(real or imaginary), for quadratic equations, using the square root property and quadratic formula methods.

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. Equations, Inequalities, and Applications
 - A. Review of Equations
 - B. Formulas and Literal Equations
 - C. Word Problems—Mixture, Interest, and Uniform Motion
 - D. Inequalities in One Variable
 - E. Absolute Value Equations
 - F. Absolute Value Inequalities
- II. Factoring, Rational Expressions and Rational Equations
 - A. Review of Factoring Techniques
 - B. Factoring the Sum and Difference of Cubes
 - C. Simplify, Multiply, and Divide Rational Expressions
 - D. Add and Subtract Rational Expressions
 - E. Complex Fractions
 - F. Solve Rational Expressions Equations & Literal Equations
- III. Equations of Lines, Functions, and Systems of Equations
 - A. Equations of Lines

- B. Function Operations
 - C. Synthetic Division
 - D. Solving Systems with 2 Variables
 - E. Solving Systems with 3 Variables
- IV. Roots and Radicals
- A. Simplifying Radical Expressions
 - B. Rational Exponents
 - C. Simplifying and Combining Radical Expressions
 - D. Multiplication and Division of Radical Expressions
 - E. Equations with Radicals
 - F. Complex Numbers
- V. Solving and Graphing Quadratic Functions
- A. Solving Quadratic Equations by Completing the Square
 - B. Solving Quadratic Equations by the Quadratic Formula
 - C. Graph of Quadratic Functions

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.