MDE 60 Course Outline

MDE 60 – Intermediate Algebra (3 CR)
Course Type: Developmental
Description: Covers topics in algebra. Lecture 3 hours per week.

Students should only take MDE 60 if:

1. plan to take MTH 161 Precalculus.
2. plan to take MTH 167 Precalculus with Trigonometry.
3. transferring to another university and need competency in Algebra I and Algebra II as a prerequisite.

Text: Knewton Alta Single Term Access (180 Day) - $48.00
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Course Objectives:

- Solve Linear equations
- Graph Lines
- Simplify exponential expressions with properties of exponents
- Perform basic operations on polynomials
- Simplify algebraic expressions containing radical expressions
- Factor perfect square binomials, trinomials, and four-term polynomials completely
- Simplify algebraic expressions containing rational expressions
- Solve linear inequalities
- Solve quadratic equations
- Use the Pythagorean theorem to find the length of the side of a right triangle
- Solve equations involving rational and radical expressions
- Solve linear systems
- Understand function notation
- Graph both linear inequalities and quadratics

Unit Objectives:

Unit 1: Solving and Graphing Linear Equations

1.1.a Solving Equations Using the Properties of Equality.

1.1.b Solve Proportions.

1.1.c Solving for a Specific Variable.

1.2.a Identifying Intercepts on the Coordinate Plane.

1.2.b Finding the Slope of the Graph of a Linear Equation.

1.2.c The Slope Formula.

1.2.d Slope-Intercept Form and Slope of Special Lines

1.2.e Graphing Linear Equations

Unit 2: Polynomial and Radical Expressions

2.1a Properties of Exponents (Product and Power)

2.1.b Properties of Exponents (Quotient) and Zero as an Exponent

2.1.c Negative Exponents.

2.1.d Simplify expressions with integer exponents

2.2.a Adding and Subtracting Polynomials

2.2.b Multiplying Polynomials.

2.3.a Understanding Radicals.

2.3.b Rewrite & simplify Rational Exponents in Radical Notation.

2.4.a Simplifying Square Roots using the Product Property.

2.4.b Simplifying Square Root Expressions Using the Quotient Property.

2.5.a Adding and Subtracting Square Root Expressions.

2.5.b Multiplying Square Root Expressions.

2.6 Rationalizing One-Term Denominators

Unit 3: Factoring and Rational Expressions

3.1.a Creating a Greatest Common Factor.

3.1.b Factor the Greatest Common Factor from a Polynomial

3.1.c Factoring by Grouping.

3.1.d Factoring Trinomials with a Leading Coefficient of 1.

3.1.e Factoring Trinomials with a Leading Coefficient Other than 1.

3.1.f Factoring difference of square binomials.

3.2.a Divide Polynomials by Monomials

3.2.b Simplifying Rational Expressions

3.3.a Adding & Subtracting Rational Expressions with Unlike Denominators.

3.3.b Multiplying and Dividing Rational Expressions

Unit 4: Solving Techniques

4.1.a Express an Inequalities using Interval Notation.

4.1.b Solving Linear Inequalities

4.2.a Solving Quadratic Equations by Factoring.

4.2.b Solving Quadratic Equations Using the Square Root Property.

4.2.c Solving Problems with the Pythagorean Theorem.

4.2.d Introduction to Complex numbers and the Imaginary Unit.

4.2.e Solving Quadratic Equations with the Quadratic Formula

4.3.a Use a General Strategy for Solving Equations with Fractions.

4.3.b Solving Rational Equations.

4.4 Solving Radical Equations

4.5 Solve a System of Linear Equations by Substitution or Elimination method.

4.6 Function Notation

4.7 Graphing Linear Inequalities

4.8 Transformations of Parabolas.

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Title IX Statement (PDF)