

# MTH 23 - BEGINNING ALGEBRA

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## Course Description

This is a basic course in algebra covering the following topics: operations on integers, rational numbers, numbers in scientific notation, and polynomials; exponent rules; dimensional analysis; solving linear equations; applications of linear equations in geometry, mixture, percents, and motion; graphing and analysis of graphs, particularly lines, in the coordinate plane; factoring; solving quadratic equations by factoring, applications of quadratic equations in geometry, mixture, percents and motion. The course concludes with an introduction to simplifying multiplying and dividing rational expressions and solving proportions. Good math writing form is stressed.

## Credit Hours

4

## Contact Hours

4

## Lecture Hours

4

## Required Prerequisites

A grade of 2.0 or better in MTH 08 or appropriate placement.

## Course Learning Outcomes

### Knowledge:

- Show proper usage of addition, subtraction, multiplication, division, and exponentiation on the integers, fractions, decimals in addition to algebraic expressions.
- Show proper usage of mathematical properties (Associative, Commutative, and Distributive properties of addition and multiplication) on algebraic expressions.
- Use properties of integer exponents.
- Distinguish between an algebraic expression and an equation.
- Determine the proper usage of mathematical terminology and symbolization associated with: algebraic expression, polynomial expression, like terms, factoring, linear equation, quadratic equation, simplify, solve, unit conversion, scientific notation, Cartesian coordinate system, slope, and intercepts.
- Use procedures to: combine like terms, evaluate algebraic expressions, simplify expressions, simplify exponents, factor algebraic expressions, solve linear, quadratic, and rational (proportions) equations, graph linear equations, and convert units (dimensional analysis).
- Represent solutions to equations; conditional, identity, and contradictory.

### Application:

- Apply the appropriate procedure in simplifying mathematical expressions, solving equations and/or written applications.

### Integration:

- Apply mathematical operations/procedures to problems involving; evaluating and simplifying expressions or solving equations including applications.

### Human Dimension:

- Strive to improve areas of mathematical weakness based on feedback.
- Collaborate with peers during group work.

### Caring - Civic Learning:

- Recognize the impact mathematics plays in civic situations such as politics, education and income.

### Learning How to Learn:

- Relate mathematical skills to real-life situations.