Catalog Description: Topics for all formats include special products and factoring, rational expressions and equations, rational exponents, radicals, radical equations, quadratic equations, absolute value equations and inequalities, complex numbers, equations of lines, an introduction to the function concept, and graphing. This course carries institutional credit but will not transfer and will not be used to meet degree requirements.

Student Learning Outcomes: Upon completion of this course the student will

- Define, represent, and perform operations on real and complex numbers.
- Recognize, understand, and analyze features of a function.
- Recognize and use algebraic (field) properties, concepts, procedures (including factoring), and algorithms to combine, transform, and evaluate absolute value, polynomial, radical, and rational expressions.
- Identify and solve absolute value, polynomial, radical, and rational equations.
- Identify and solve absolute value and linear inequalities.
- Model, interpret and justify mathematical ideas and concepts using multiple representations.
- Connect and use multiple strands of mathematics in situations and problems, as well as in the study of other disciplines.

Contact and Credit Hours:

- Credit Hours: 3
- Lecture Hours: 4
- Total Contact Hours: 64

Prerequisites: A grade of C or better in Math 0308 (Introductory Algebra), departmental approval, or test scores in the following ranges:

- ACCUPLACER: EA 72 - 86
- ASSET: NS 43+ or IA 37 - 46
- COMPASS: A 50 - 66
- THEA: 253 - 274


Recommended calculators: TI-83, TI-83 Plus, TI-83 Silver Edition, TI-84, TI-84 Plus or TI-84 Silver Edition. The TI – 89 may NOT be used!
Textbook Sections:

Chapter 2 – Equations, Inequalities, and Problem Solving
2.9 – Solving Linear Inequalities (Review of 0308)
2.10 – Compound Inequalities
2.11 – Absolute Value Equations
2.12 – Absolute Value Inequalities

Chapter 8 – Graphs and Functions
8.1 – Graphing Equations (review Objectives #1 thru 3, cover Objective #4)
8.2 – Introduction to Functions
8.3 – Graphing Linear Functions
8.4 – The Slope of a Line (Review of 0308)
8.5 – Equations of Lines
8.7 – Graphing Linear Inequalities (Objective #1 only)

Chapter 9 – Exponents, Polynomials, and Polynomial Functions
These are skills that were covered in MATH 0308. We will review them, but not cover the sections individually; however, please cover Objective #3 in section 9.2 and Objectives #2 & 3 in section 9.4.

9.1 – The Greatest Common Factor and Factoring by Grouping
9.2 – Factoring Trinomials (cover Objective #3)
9.3 – Factoring by Special Products
9.4 – Solving Equations by Factoring and Problem Solving (cover Objectives #2 & 3) *there are more example problems of these objectives in sections 6.6 & 6.7.

Chapter 10 – Rational Expressions
10.1 – Rational Functions and Multiplying and Dividing Rational Expressions (cover Objectives #1 & 5, review Objectives #2 thru 4)
10.2 – Adding and Subtracting Rational Expressions
10.3 – Simplifying Complex Fractions
10.5 – Solving Equations Containing Rational Expressions
10.6 – Rational Equations and Problem Solving
10.7 – Variation and Problem Solving

Chapter 11 – Rational Exponents, Radicals, and Complex Numbers
11.1 - Radicals and Radical Functions
11.2 – Rational Exponents
11.3 – Simplifying Radical Expressions (Objectives #1 thru 3 only)
11.4 – Adding, Subtracting, and Multiplying Radical Expressions
11.5 – Rationalizing Denominators and Numerators of Radical Expressions
11.6 – Radical Equations and Problem Solving
11.7 – Complex Numbers

Chapter 12 – Quadratic Equations and Functions
12.1 – Solving Quadratic Equations by Completing the Square
12.2 - Solving Quadratic Equations by the Quadratic Formula
12.3 – Solving Equations by Using Quadratic Methods (Objective #1)