South Central College

Math 0098 College Algebra-corequisite

Common Course Outline

Course Information

Description This course provides support for students taking MATH 120 and must be taken simultaneously with MATH 120 to further develop skills needed for successful completion of the course. MATH 98 consists of Intermediate Algebra topics such as properties of real numbers, polynomials, linear and quadratic equations, linear and quadratic functions, domain and range, and topics in logarithms and exponentials. Corequisite: MATH 120.

Total Credits 2

Total Hours 32

Types of Instruction

Instruction Type	Credits/Hours
Lecture	2

Pre/Corequisites

Classic Accuplacer score 56+ in Arithmetic AND 0-75 in Elementary Algebra

OR

Next Gen Accuplacer score 250-300 Arithmetic AND 200-249 QAS AND 200-249 AAF

Or

an MCA score 1146-1149

Or

Math 75 with C or Better

Institutional Core Competencies

Critical and Creative Thinking - Students will be able to demonstrate purposeful thinking with the goal of using a creative process for developing and building upon ideas and/or the goal of using a critical process for the analyzing and evaluating of ideas.

Course Outcomes

1. **Use algebraic properties to evaluate/manipulate polynomials and rational expressions. (9.2.3.1) (9.2.3.4)**

Learning Objectives
Add, subtract, multiply, and divide algebraic expressions.
Use algebraic properties to evaluate expressions across the rational numbers.
Simplify polynomial expressions.
Add, subtract, multiply, and divide polynomials.
Factor common monomial factors from polynomials.
Replace variables and evaluate expressions.
Simplify, add/subtract, multiply, and divide rational expressions.
Simplify complex rational expressions.
Use Rules of Exponents in both integer and rational form.

2. Solve linear equations and inequalities algebraically and graphically. (9.2.4. - multiple areas)

Learning Objectives
Solve one variable linear equation using the field axioms.
Graph two variable linear equations on the Cartesian coordinate plane.
Identify the slope and intercepts represented by the equations and inequalities.
Select appropriate area representing the solution set represented by the inequalities.
State the solution set for the inequality in algebraic and/or interval notation.
Recognize the real-world application of equations and inequalities.

3. Factor algebraic expressions using appropriate factoring techniques. (9.2.3.3 and 9.2.4.1)

Learning Objectives
Factor second degree expressions (including trinomials, difference of two squares, and binomials squared) using appropriate techniques.
Factor the sum and difference of two cubes.
Apply the general principles of factoring to factor a variety of expressions.

4. Apply appropriate factoring techniques and the quadratic formula to solve quadratic functions.

Learning Objectives
Identify the form of second degree equation needed for the quadratic formula.
Identify the discriminate and use it to identify the number and type of solutions.
Use the quadratic formula to solve for real and non-real solutions to quadratic functions.
Use factoring techniques to solve quadratic functions.

5. Solve systems of linear equations with two variables. (9.2.4.5)

Learning Objectives
Solve two variable systems using graphing.
Solve two variable systems using addition.
Solve two variable systems using substitution.

6. Use calculator functions to manage scientific notation and logs.

Learning Objectives
Convert between standard (decimal) notation form and scientific notation.
Complete the four basic operations in scientific notation.
Compute logarithms of different bases in a calculator.

7. Apply mathematical techniques to real-life problems. (9.2.4.1)

Learning Objectives
Convert a situation to the appropriate relation and solve.
Explain the meaning of calculations in terms of the situation.
Use formulas to solve situational problems, including solving the formulas for different variables. (9.3.1.1)
Apply formulas to situations and explain the conclusion.

8. Identify functions in graph and equation form on a two-dimensional plane. (9.2.1. - multiple areas)

Learning Objectives
Identify the important features of functions.
State the domain and range of a function.

Graph linear and quadratic function.
Use function notation.
Graph basic power functions.

9. Identify functions and their range and domains based on graphs and equations.

Learning Objectives

Express range and domain of a function in interval and/or algebraic notation.
Use the vertical line rule to identify functions.
Explain the meaning of a one-to-one relationship.

10. Understand the rules of integers, fractions, all other real numbers, and complex numbers.

Learning Objectives

Apply the rules of adding/subtracting integers.
Apply the rules of multiplying/dividing integers.
Apply rules of multiplying/dividing fractions.
Apply rules for adding/subtracting fractions.
Apply the properties of all real numbers.
Use and follow the order of operations.
Use a calculator.
Demonstrate the usage of Least Common Multiple (LCM), Greatest Common Factor (GCF), roots, radicals, exponents, absolute value, etc.
Simplify complex fractions using rules of fractions and order of operations.
Apply the definition of complex numbers to the four basic arithmetic operations.

SCC Accessibility Statement

Disability Services provides accommodations and other supports to students with permanent and temporary disabilities that affect their SCC experience. Disabilities may include mental health (anxiety, depression, PTSD), ADHD, learning disabilities, chronic health conditions (migraine, fibromyalgia), sensory disabilities, and temporary disabilities (broken arm, surgery). Common accommodations are extended test time, private room for testing, audiobooks, and sign language interpreter.

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