MATH A067N: MATH SKILLS FOR PRECALCULUS

Item	Value
Curriculum Committee Approval Date	12/06/2023
Top Code	170200 - Mathematics Skills
Units	0 Total Units
Hours	108 Total Hours (Lab Hours 108)
Total Outside of Class Hours	0
Course Credit Status	Noncredit: Support Course (U)
Material Fee	No
Basic Skills	Basic Skills (B)
Repeatable	Yes; Repeat Limit 99
Grading Policy	P/NP/SP Non-Credit (D)

Course Description

This noncredit course will help students build various algebraic and trigonometric skills at the level required in their Precalculus course. These skills include factoring, solving equations, manipulating rational expressions, laws of exponents, logarithms, evaluating trigonometric expressions, and solving trigonometric equations. Students enrolled in this class should be concurrently enrolled in a transfer-level math class 100 level or higher. NOT DEGREE APPLICABLE. Not Transferable.

Course Level Student Learning Outcome(s)

1. Students will be able to demonstrate improvement in skills required for Precalculus including factoring, solving, manipulating rational expressions, laws of exponents, logarithms, evaluating trigonometric expressions, and solving trigonometric equations.

Course Objectives

- 1. Build skills related to algebraic operations involving algebraic expressions
- 2. Build skills related to linear equations
- 3. Build skills related to polynomials
- 4. Build skills related to quadratic equations
- 5. Build skills related to graphs
- 6. Build skills related to rational functions
- 7. Build skills related to exponential and logarithmic functions
- 8. Build skills related to inequalities
- 9. Build skills related to system of equations
- 10. Build skills related to trigonometric functions
- 11. Build skills related to trigonometric inverse functions
- 12. Build skills related to trigonometric identities
- 13. Build skills related to trigonometric equations
- 14. Build skills related to polar coordinates

Lecture Content

Students will build skills in the following areas as needed: Operations with real numbers Addition, subtraction, multiplication, and division of real numbers Order of operations Rule of Exponents Linear Equations and Inequalities Solve linear equations Graph linear equations Solve linear inequalities Solve system of equations Solve system of inequalities Introduction to polynomials Addition, subtraction, multiplication, and division with polynomials Factoring polynomials Quadratic Equations Solve quadratic equations (by factoring or by square root method) Graph quadratic equations Introduction to functions Function notation and evaluation Domain and range of a function given graphically and algebraically Algebra of functions: addition, subtraction, multiplication, division, and composition Operations with rational expressions Addition, subtraction, multiplication, and division with rational expressions. Simplify complex fractions Operations with radical expressions Simplify radical expressions Addition, subtraction, multiplication, and division with radical expressions Rationalize the denominator Exponential and logarithmic functions Introduction to exponential and logarithmic functions Properties of exponential and logarithmic functions Solving equations involving exponential and logarithmic terms Introduction to complex numbers Complex numbers and their conjugates Adding and subtracting complex numbers Multiplying and dividing complex numbers Trigonometry Right triangle t rigonometry Unit circle and radians Graphs of trigonometric functions Evaluating trigonometric functions Trigonometric identities Solving trigonometric equations Inverse trigonometric functions Polar coordinates

Method(s) of Instruction

- Enhanced NC Lab (NC2)

Instructional Techniques

Lecture DiscussionCollaborative LearningGuided Independent Study

Reading Assignments

Students will spend approximately one hour per week reading from the assigned text or other materials.

Writing Assignments

Students will spend approximately one hour per week on writing assignments.

Out-of-class Assignments

Students will spend approximately two hours per week on out-of-class assignments including problem solving exercises.

Demonstration of Critical Thinking

Applications of skills to problem solving exercises

Required Writing, Problem Solving, Skills Demonstration

Problem solving exercises

Eligible Disciplines

Mathematics: Masters degree in mathematics or applied mathematics OR bachelors degree in either of the above AND masters degree in statistics, physics, or mathematics education OR the equivalent. Masters degree required.

Textbooks Resources

1. Required Miller, J. Beginning and Intermediate Algebra, 6th ed. McGraw Hill, 2022 2. Required Lial, M. Trigonometry, 12th ed. Pearson, 2020