MATH A068N: MATH SKILLS FOR CALCULUS

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 skills required in their Calculus course. These skills include algebra skills such as factoring, solving equations, manipulating rational expressions, laws of exponents, and logarithms. These skills also include trigonometric skills such as right triangle trigonometry, graphing trigonometric functions, evaluating trigonometric equations, trigonometric identities and equations, and inverse trigonometric functions. 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 Calculus including factoring, solving equations, manipulating rational expressions, laws of exponents, logarithms, evaluating trigonometric expressions, and solving trigonometric equations.

Course Objectives

- 1. Build skills related to linear equations
- 2. Build skills related to polynomials
- 3. Build skills related to quadratic equations
- 4. Build skills related to functions
- 5. Build skills related to rational expressions
- 6. Build skills related to radical expressions
- 7. Build skills related to exponential and logarithmic functions
- 8. Build skills related to area, volume, and surface area
- 9. Build skills related to trigonometric functions
- 10. Build skills related to trigonometric equations

Lecture Content

Students will build skills in the following areas as needed: Linear Equations Solve linear equations Graph linear equations Solve linear inequalities Introduction to polynomials Addition, subtraction, multiplication, and division with polynomials Factoring GCF including expressions with rational exponents Difference of squares Perfect square trinomials Trinomials Sum and difference of cubes 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 Piecewise functions Absolute value functions Inverse of a function Simplifying Difference Quotients Graphing multiple functions on a common axis system Operations with rational expressions Addition, subtraction, multiplication, and division with rational expressions. Simplify complex fractions Solving equations with rational expressions Operations with radical expressions Simplify radical expressions Addition, subtraction, multiplication, and division with radical expressions Rationalize the denominator Solving equations with radicals Exponential and logarithmic functions Introduction to exponential and logarithmic functions Properties of exponential and logarithmic functions Solving equations involving exponential and logarithmic terms Geometry Similar triangle s Area of a sector Surface area and volume of solids such as cylinder, cones, and right prisms Trigonometry Right triangle trigonometry 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 Sullivan, M. Precalculus, 11th ed. Pearson, 2020