MATH A088: SKILLS WORKSHOP FOR CALCULUS 1

Item	Value
Curriculum Committee Approval Date	12/04/2024
Top Code	170200 - Mathematics Skills
Units	1 Total Units
Hours	54 Total Hours (Lab Hours 54)
Total Outside of Class Hours	0
Course Credit Status	Credit: Support Course - Non-Degree Applicable (S)
Material Fee	No
Basic Skills	Basic Skills (B)
Repeatable	No
Open Entry/Open Exit	No
Grading Policy	Pass/No Pass (B)

Course Description

This course will help students build various foundational skills required in their Calculus course. These skills related to factoring, graphing, solving equations, evaluating functions and difference quotients, laws of exponents and logarithms, geometry, and trigonometry. COREQUISITE: MATH A180 or MATH A180H. Not transferable.

Course Level Student Learning Outcome(s)

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

Course Objectives

- 1. Build skills related to factoring
- 2. Build skills related to graphing
- 3. Build skills related to parent functions
- 4. Build skills related to linear equations
- 5. Build skills related to function evaluation
- 6. Build skills related to solving equations
- 7. Build skills related to difference quotient
- 8. Build skills related to exponential rules
- 9. Build skills related to trigonometric identities
- 10. Build skills related to geometry
- 11. Build skills related to logarithms
- 12. Build skills related to summation notation

Lecture Content

See Lab Content

Lab Content

Skills for Limits and Derivatives Factoring Introduction GCF including expressions with rational exponents Difference of squares Perfect square trinomials Trinomials Sum and difference of cubes Graphing principles Evaluating Functions and Solving Equations Graphically Domain and Range Increasing/Decreasing on an interval Parent Function Graphs Logarithmic Functions Linear Functions Polynomial Functions Exponential Functions Trigonometric Functions Inverse Tangent Function Piecewise-Defined Functions Absolute Value Functions Basic Transformations of Functions Linear Equations Slope Find an equation given a slope and a point Basic Function Evaluation Trigonometric Functions Inverse Trigonometric Functions Logarithmic Functions Solving Equations Quadratic and Quadratic form Using U-substitution Zero Product Property Polynomials Equations with one radical Rational Trigonometric Difference Quotient Both (x a) and h in Denominator Rational Functions Radical Functions Polynomial Functions Skills for Differentiation Rules Exponent Rules Re-writing expressions as a power of x Factoring Continued For rational expressions after quotient Rule Factoring involving exponentials Trig Identities introduction (familiarity, minimal verifying) Ratio Reciprocals Pythagorean Sum and Difference (light) Double Angle Geometry Pythagorean Theorem Area and Basic Volume Similar Triangles Expanding Logarithmic Expressions Skills for Integrals Introduction to Summation Notation Even and Odd Functions Skills for Applications of Integration Graphing 2 or more functions in the same Coordinate Plane Finding Intersection of 2 or more graphs of functions

Method(s) of Instruction

- Lab (04)

Instructional Techniques

Lecture, discussion, collaborative learning

Reading Assignments

N/A

Writing Assignments

Students will complete written exercises during the lab

Out-of-class Assignments

N/A

Demonstration of Critical Thinking

Group work, quizzes, written tests or comprehensive final exam, and application of skills in support of Calculus

Required Writing, Problem Solving, Skills Demonstration

Group work, quizzes, written tests, or comprehensive final exam.

Eligible Disciplines

Mathematics: Master's degree in mathematics or applied mathematics OR bachelor's degree in either of the above AND master's degree in statistics, physics, or mathematics education OR the equivalent. Master's degree required.

Textbooks Resources

1. Required Sullivan, M. Algebra and Trigonometry, 12 ed. Pearson, 2024