MATH G098N: SUPPORT FOR CALCULUS 1

Item	Value
Curriculum Committee Approval Date	11/07/2023
Top Code	170100 - Mathematics, General
Units	0 Total Units
Hours	36 Total Hours (Lecture Hours 36)
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), • Letter Non-Credit (L)

Course Description

This noncredit course provides students with the necessary support to succeed in Math G180: Calculus 1. Topics include study and test-taking skills, operations on real numbers, linear equations, polynomial, rational, exponential, logarithmic, trigonometric, inverse functions, and solving applicational problems. Students taking this course will gain the necessary algebraic and trigonometric skills, improving their foundational mathematical competence, to succeed in MATH G180: Calculus 1. COREQUISITE: MATH G180. NOT DEGREE APPLICABLE. Not Transferable.

Course Level Student Learning Outcome(s)

1. Course Outcomes
2. Find the domain of a function.
3. Find the equation of a line given the slope and a point.
4. Use the unit circle to solve for solutions to a trigonometric equation.

Course Objectives

- 1. Perform basic operations of the real numbers.
- 2. Determine the domain and range of a function.
- 3. Solve polynomial, rational, exponential, logarithmic, and trigonometric equations.
- 4. Interpret the concept of a function and its properties.
- 5. Learn the unit circle.
- 6. Use trigonometric identities and properties to simplify expressions.

Lecture Content

Study Skills Test-Taking Skills Operations of Real Numbers Arithmetic Simplifying Rounding Summation notation Sets and intervals Ratios and proportions Ratios as fractions Solving problems using proportions Cartesian Plane Functions Definition and concept Domain and range Vertical line test One-to-one Linear Equations Interpret the slope Interpret the vertical intercept Slope-intercept form Point-slope form Polynomial Functions Domain and range Solving for roots Completing the square Behavior around roots Ending behavior Conditional equations Rational Functions Domain and range Graphing Holes and vertical asymptotes Ending behavior Conditional equations Algebraic Functions Radical functions Domain and range Conditional equations Exponential and Logarithmic Functions Domain and range Graphing Exponential properties Logarithmic properties Conditional equations Trigonometry Trigonometric functions Domain and range Unit circle Graphing Trigonometric identities Conditional equations Inverse trigonometric functions Inverse Functions Graphical properties Algebraic properties Piecewise Functions Domain and range Graphing Absolute value function Step-function Hyperbolic Functions Domain and range Properties Identities Relationship to trigonometric functions Relationship to exponential functions Solving Word Problems Identifying questions Identifying formula/equation Interpreting result

Method(s) of Instruction

- Enhanced NC Lect (NC1)
- Online Enhanced NC Lect (NC5)
- Live Online Enhanced NC Lect (NC9)

Reading Assignments

Course textbook which provides explanations, worked examples, and problems to be solved.

Writing Assignments

Homework and assessments covering topics presented in the course.

Out-of-class Assignments

Homework and activities.

Demonstration of Critical Thinking

Students will demonstrate critical thinking and problem-solving skills by dissecting applicational word problems, identifying the appropriate formula or equation to aid in solving the problem, then reinterpreting the results. Demonstrations will be shown by completing assignments and participating in discussions.

Required Writing, Problem Solving, Skills Demonstration

Assessments, homework, or projects where students demonstrate their mastery of the learning objectives and their ability to devise, organize, and present complete solutions to problems.

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 Abramson, North. College Algebra with Corequisite Support, 2 ed. OpenStax (OER), 2021 2. Required Abramson, Jay. Algebra and Trigonometry, 1 ed. OpenStax (OER) (latest), 2021