MATH C097: SUPPORT FOR PRECALCULUS

Item	Value
Curriculum Committee Approval Date	10/27/2023
Top Code	170100 - Mathematics, General
Units	2 Total Units
Hours	36 Total Hours (Lecture Hours 36)
Total Outside of Class Hours	0
Course Credit Status	Credit: Support Course - Non-Degree Applicable (S)
Material Fee	No
Basic Skills	Not Basic Skills (N)
Repeatable	No
Grading Policy	Pass/No Pass (B)

Course Description

A concurrent support course designed to review prerequisite topics necessary for success in MATH C170, Precalculus, covering algebra skills and concepts, along with mathematical problem solving and study skills that promote or are needed for success in College Algebra, and basic geometry for success in Trigonometry. COREQUISITE: MATH C170. NOT DEGREE APPLICABLE. Not Transferable.

Course Level Student Learning Outcome(s)

1. Use proportions to set up and solve equations based on similar polygons.
2. Factor a Trinomial with a leading coefficient other than 1.
3. Apply the concept of a function; solve and graph quadratic, rational, radical, exponential, and logarithmic functions at a pre-collegiate level.

Course Objectives

- 1. Simplify arithmetic and algebraic expressions.
- 2. Solve and graph linear, quadratic, absolute value, radical, rational, logarithmic, and exponential functions.
- 3. Recognize and graph elementary conics, including circle and parabola.
- 4. Understand and use proportions, area formulas, and the Pythagorean Theorem to solve problems in geometry.
- 5. Deal with testing and math anxiety, create a growth mindset, increase number and types of study skills, learn about meta-cognition and other aspects of the affective domain needed for success in college-level math.

Lecture Content

Operations, simplification and manipulation Fractions, decimals, and percent Integers Polynomials Factoring Rational expressions Complex numbers Logarithms Variables with rational exponents Algebraic expressions involving radicals Solving Mathematical Statements Linear equations Quadratic equations Factorable polynomial equations Rational equations Radical equations Absolute value equations Logarithmic equations Exponential equations Linear systems of equations Graphing Relations Functions and their inverses Conic sections Modeling and applications Functions Application and problem-solving strategies and techniques Affective Domain Math anxiety Test anxiety Growth mindset Meta-cognition Study skills Group work and collaboration skills Technology skills

Method(s) of Instruction

- Lecture (02)
- DE Live Online Lecture (02S)
- DE Online Lecture (02X)

Instructional Techniques

The instructor shall deliver lectures of course content; assign homework and quizzes; deal with math anxiety by establishing a friendly, student-centered learning environment; relate material in the course to real life and the outside world; involve active learning; and require participation and regular, substantive interaction (RSI), including student-to-student and student-to-instructor interaction through the use of individual, small-group and whole-class discussion; apply and include technology to increase motivation such as graphing calculators, the Internet, and computer software; and include appropriate methods of summative assessment including midterm and final exams.

Reading Assignments

Reading assignments are included as part of studying for and completing homework, quizzes, midterm exam(s), final exam, interaction and discussion, and individual and group projects as assigned.

Writing Assignments

Written and computer-based assignments are included as part of studying for and completing homework, quizzes, midterm exam, final exam, interaction and discussion, and individual and group projects as assigned.

Out-of-class Assignments

Out-of-class assignments are included as part of studying for and completing homework, quizzes, midterm exam, final exam, interaction and discussion, and individual and group projects as assigned.

Demonstration of Critical Thinking

Students will be able to choose from a variety of approaches to solve and explain solutions and justify reasoning verbally or in writing and may be included in classroom discussions, quizzes, midterm examination, final examination, and projects.

Required Writing, Problem Solving, Skills Demonstration

Students will be able to choose from a variety of approaches to solve and explain solutions and justify reasoning verbally or in writing and may be included in classroom discussions, quizzes, midterm examination, final examination, and projects.

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: Concepts through Functions, 4th ed. Pearson, 2019

Other Resources

1. OER: Precalculus, Publish Date: Dec 21, 2021, Web Version Last Updated: Feb 02, 2022; Digital: ISBN-13: 978-1-951693-39-8 By Senior Contributing Author, Jay Abramson, Arizona State University 2. Coastline Library