Subject:	PASS
Course Number:	510
Descriptive Title:	Scientific Math Academy
Division:	Library and Learning Resources
Department:	Pathways to Academic Success
Course Disciplines:	Mathematical Sciences
Catalog Description:	This course covers arithmetic skills commonly used in science lab courses. Some topics include (but are not limited to) converting numbers to scientific notation, place values and rounding, scatterplots and graphing linear equations, converting between percents, fractions, and decimals, metric system, calculating area and volume, as well as exploring exponents and logarithms.
Prerequisite:	
Co-requisite:	
Recommended Preparation:	
Enrollment Limitation:	
Hours Lecture (per week):	2.33
Hours Laboratory (per week):	0.3
Outside Study Hours:	0
Total Course Hours:	48
Course Units:	0 units
Grading Method:	Pass/No Pass/SP
Credit Status:	Noncredit
Transfer CSU:	No
Effective Date:	
Transfer UC:	No
Effective Date:	
General Education ECC:	
Term:	
Other:	
CSU GE:	
Term:	
Other:	
IGETC:	
Term:	

Other:	
Student Learning Outcomes:	Upon completion of the course, students will be able to: 1) recognize real numbers in decimal, scientific notation, percent, and fraction forms involved in real-world science application problems, as well as convert between the metric and imperial systems of measu rement. 2) use visual and graphical methods to represent and analyze univariate and bivariate data to solve scienc e lab-related problems. 3)perform mathematical order of operations (addition, subtraction, multiplication, division, laws of expon entiation,and logarithms) to solve equations for an unknown variable or simplify mathematical expression s.
Course Objectives:	1. Perform various operations (addition, subtraction, multiplication, division, and exponentiation) on different sets of numbers (whole, integer, and rational) and recognize equivalence when it occurs, particularly with fractions, decimals, and percents. 2. Formulate mathematical representations of real-world applications, including the recognition of proportional relationships. 3. Use estimations to determine the reasonableness of results. 4. Recognize and apply the concepts of variables, expressions, and equations on linear, exponential, and logarithms. 5. Find perimeters, areas, and volumes of various geometrical shapes and use in applications. 7. Use the properties of the real numbers to evaluate, simplify, and factor algebraic expressions, including expressions with fractions and radicals.
Major Topics:	I) GEOMETRY AND MEASUREMENT (5 hours, lecture) A. Formulas: area, perimeter, volume, surface area. B. Dimensional Analysis: converting within the Imperial system and the metric system. C. Applications interspersed. II) OPERATIONS AND APPLICATIONS (2 hours, Lab) A. Informational graphing. B. Geometry and measurement. III) INTEGERS (6 hours, Lecture) A. Operations on signed numbers. B. Order of operations.

C. Introduction algebraic expressions.

D. Applications

IV) EQUATION SOLVING WITH INTEGERS (5 hours, lecture)

A. Simple Linear Equations.

B. Properties (for example, distributive and equality properties).

C. Linear equations with more than 1 operation.

V) OPERATIONS AND APPLICATIONS (2 hours, Lab)

A. Integers.

B. Equation solving with Integers.

VI) EQUATION SOLVING WITH FRACTIONS, PERCENT, AND DECIMAL (9 hours, Lecture)

A. Equivalent forms (such as 1/5 = .2 or 0.5<0.52, 20%).

B. Equations Formal and Informal methods.

C. Applications.

VII) EXPONENTIAL AND LOGARITHMIC FUNCTION (9 hours, Lecture)

A. Evaluate, solve, and graph the Exponential function.
B. Evaluate, solve, and graph the Logarithms function.
C. Converting between Exponential and Logarithmic functions.
D. Exponential and Logarithmic Models.

VIII) Math Lab - Operations & Applications (2 hours, Lab)

A. Solve Exponential function.
B. Solve using Properties of Logarithms.

IX) SYSTEM OF EQUATIONS AND INEQUALITIES (8 hours, Lecture)

A. Solving System of two linear equations in two variables.
B. Solving Nonlinear Systems
    a. By graphing
    b. With substitution
    c. Elimination
C. Modeling with System

Total Lecture Hours:	42
Total Laboratory Hours:	6
Total Hours:	48
Primary Method of Evaluation:	2) Problem solving demonstrations (computational or non-computational)
Typical Assignment Using Primary Method of Evaluation:	Calories Burned While Jogging: The number of calories burned by an average person while jogging is given by the equation C=(28/3)*m*, where m is the number of minutes. Graph the equation for *m*=0, 15, 30, 45, 60, and 75.
Critical Thinking Assignment 1:	1) Suppose that $90,000 is invested at 9%interest. Find the amount of money in the account after 4 years if the interest is compounded annually. Find the amount of money in the account after 4 years if the interest is compounded continuously.
Critical Thinking Assignment 2:	2) Solve the equation. Give an exact solution, and also approximate the solution to four decimal places. $2^{x+7}=3$
Other Evaluation Methods:	Quizzes, Class Performance, Homework Problems, Completion
If Other:	
Instructional Methods:	Lecture, Multimedia presentations, Demonstration, Discussion
If other:	
Work Outside of Class:	Skill practice
If Other:	
Up-To-Date Representative Texts:	Teacher-generated materials.
Alternative Texts:	N/A
Required Supplementary Readings:	N/A
Other Required Materials:	N/A
Requisite	
Category	
Requisite course:	

Requisite and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s).	
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Enrollment Limitations and Category:	
Enrollment Limitations Impact:	
Course Created by:	Malinni Roeun
Date:	03/13/2024
Original Board Approval Date:	11/18/2024
Effective Term:	SP 2025