

University College of the Cayman Islands

COURSE NAME : Preparatory Mathematics

COURSE NUMBER: MAT 99

COURSE DESCRIPTION

This course provides access to college mathematics for those students with deficiencies in this area. It covers the foundation material necessary to embark on College Algebra (MAT 105 B or S), combining arithmetic and beginning algebra. Topics include number review, basic algebra, basic geometry, and graphs of linear equations.

CREDITS: 0

PREREQUISITE: Associate Degree Students – None

Students enrolled in the pre-college program must have successfully passed MAT 98 in order to be able to move on to MAT 99.

COURSE OBJECTIVES

This course is intended to enable the student to:

- 1) Understand and use the four operations with whole numbers, fractions, and decimals.
- 2) Correctly perform calculations using orders of operation and exponential notation.
- 3) Solve problems involving proportion and percentages.
- 4) Perform operations on signed numbers and basic algebraic expressions.
- 5) Understand how to solve linear equations and inequalities
- 6) Read and interpret various types of graph.
- 7) Graph linear equations of the form $y = mx + b$
- 8) Find the slope and the y intercept of linear graphs and equations
- 9) Understand and be able to solve problems involving angles and basic geometric figures.
- 10) Use and understand Pythagoras' Theorem and basic trigonometric ratios.

COURSE OUTLINE

I. NUMBER REVIEW

- a) Whole numbers
 - Operations on whole numbers
 - Powers
 - Rounding and estimation
 - Orders of operation
- b) Integers
 - Operations on signed numbers
- c) Fractions
 - Factors, multiples and primes
 - Equivalent Fractions, improper fractions and mixed numbers
 - Operations on fractions
- d) Decimals
 - Operations on decimals
- e) Percentages
 - Ratio and proportion
 - Percentage increase and decrease
 - Equivalent forms of fractions, decimals and percentages
 - Solving problems using percentage and proportion

II. ALGEBRA

- Simplifying expressions
- Solving linear equations
- Solving linear inequalities
- Rearranging basic formulae
- Substitution
- Applications

III. GRAPHS of LINEAR EQUATIONS

- Introduction to coordinate geometry
- Reading and interpreting information from graphs
- Drawing graphs from equations
- The slope
- Slope and y intercept of straight lines
- The equation of a straight line

IV. GEOMETRY

Basic geometric figures

Perimeter, area, volume

Measuring lengths and angles

Angle properties

Similar triangles

Pythagoras' Theorem

Sine, cosine and tangent

ASSESSMENT

Midterm	20%
Assignments/tests	20%
Final Exam	60%
Total	100%

REQUIRED MATERIALS

- **Prealgebra and Introductory Algebra**, Bittenger and Ellenbogen, Pearson-Addison Wesley
- **TI30 11X calculator**, available at the book store