

BROOME COMMUNITY COLLEGE
Binghamton, New York

COURSE TITLE FOUNDATIONS FOR COLLEGE MATHEMATICS I MAT 090

CLASS LECTURE HOURS 4 **LAB HOURS** 0 **CREDIT HOURS** 0

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MAT 090 Objectives

After taking MAT 090 the student should be able to:

Perform skills in four categories: Arithmetic, Basic Algebra/Geometry, Problem Solving/Estimation and on a scientific calculator.

Note: Throughout the course the students are expected to solve applied problems related to the topics of the course.

Arithmetic

1. Add, subtract, multiply, and divide whole numbers, fractions, decimals both with and without the use of a calculator.
2. Write fractions in equivalent forms.
3. Convert between decimals, fractions and percents (including rounding).
4. Define whole number exponents and evaluate numerical expressions with whole numbers exponents.
5. Find the prime factorization of a number.
6. Recognize, use and understand the commutative, the associative, and the distributive laws of real numbers.
7. Know and use order of operations effectively.
8. Find the mean, median, mode, and range for a data set and understand their meaning.

Basic Algebra/Geometry

9. Identify polygons, classify angles, and measure angles using a protractor.
10. Use a ruler to measure lengths in both English and Metric units.
11. Find perimeter, area and volume of various geometric objects.
12. Use and understand the Pythagorean Theorem, similarity and congruence.
13. Combine like terms for basic linear algebraic expressions.
14. Solve and check basic linear equations.

Problem Solving/Estimation

15. Formulate and solve applications with whole numbers and integers.
16. Solve ratio and proportion application problems.
17. Solve percent application problems.
18. Formulate and solve problems involving linear equations.
19. Solve application problems involving both English and Metric measurement conversions.
20. Make estimates by developing a sense of relative number size.
21. Construct and interpret graphs and charts with appropriate scales.

Calculator

22. Use all functions fraction key.
23. Use all arithmetic functions.
24. Use square, square root, and power functions.
25. Use parentheses keys.
26. Use storage and recall functions.
27. Use π key.

CATALOG COURSE DESCRIPTION:**MAT 090 FOUNDATIONS FOR COLLEGE MATHEMATICS I**

Arithmetic of whole numbers, fractions, decimals and signed numbers. Percent, ratio and proportion. Measurement, metric units and basic geometric concepts. Language of algebra and solving simple equations. Descriptive statistics. Estimation, problem solving, critical thinking, writing and communication skills are developed in group activities. This course is designed to provide the skills necessary for students to successfully complete MAT 092, MAT 113, MAT 114.

4 Class hours

MAT 090
Foundations of College Mathematics I
Course Outline

Arithmetic, Calculators and Problem Solving

Formulating the problem

- Fractions and decimals
- Rounding and estimation
- Exponents and prime factorization
- Common fractions
- Adding and Subtracting fractions

Sets of Numbers

- Addition of integers
- Subtraction of integers
- Multiplication of integers
- Division of integers
- Rational and irrational numbers

Introduction to Algebra

- Polynomials
- Similar terms
- Simplification
- Equations
- Solving equations
- Problem solving with algebra

Percents and Problem Solving

Ratio and proportion

- Problem solving with proportions
- Percent
- Problem solving with percents

Introduction to Geometry

- Euclidean geometry
- Polygons and angles
- Triangles
- Similar triangles

Measurement and Problem Solving

- Perimeter
- Area
- Volume and capacity

Statistics

- Frequency distribution and graphs
- Descriptive statistics