



Alabama Community College System

MTH 108 Quantitative Reasoning

I. MTH 108 Quantitative Reasoning—3 Semester Hours

II. Course Description

This course is intended for students who are not majoring in science, engineering, commerce, or mathematics (i.e., students who are not required to take calculus). It provides a foundation in thinking quantitatively. An emphasis is placed on real-world applications. Topics include mathematical reasoning, data interpretation, problem-solving strategies, equation solving, number sense, probability, counting principles, geometric applications, and measurement.

III. Prerequisite

None

IV. Textbook

Due to the varied selection of quality college-level textbooks, each college will select the textbook needed to meet the requirements of this course.

V. Course Learning Outcomes

By the end of the course, students will be able to:

1. use mathematical reasoning to solve real-world problems;
2. solve and apply proportions and linear equations;
3. compute probability and apply counting principles;
4. analyze data using statistics;
5. apply select geometric and trigonometric concepts; and
6. differentiate, convert, and apply systems of measurement.

VI. Course Outline of Topics

1. Problem-solving procedures and strategies, rounding and estimation, and determining the reasonableness of answers to real world problems

2. Introduction to statistics including organizing, describing, and interpreting real world data, using various charts and graphs, and calculating and interpreting the range and measures of central tendency
3. Integers, absolute value, and using order of operations to correctly perform calculations involving integers
4. Integer exponents, scientific notation, rules of integer exponents, and using scientific notation in solving application problems
5. Solving linear equations, including real world applications
6. Ratios and proportions including representing ratios as fractions and solving application problems involving proportions
7. Percents including converting between fraction, decimal, and percent forms of a number, solving problems involving percents such as percent increase or decrease, and evaluating the validity of claims involving percents
8. Financial literacy including calculating take-home pay and tracking expenses, preparing a budget, saving for long-term expenses, and calculating simple interest
9. Introduction to probability including basic theoretical and empirical probability, tree diagrams, the fundamental counting principle, and factorial notation
10. Problem solving involving basic geometric and trigonometric concepts including the Pythagorean Theorem, special right triangles (30-60-90 and 45-45-90), and basic trigonometric ratios
11. Measurement including fundamental definitions, standard systems, converting within and between systems, and application problems including implications of improperly converting within and between systems

VII. Evaluation and Assessment

Grades will be given based upon A = 90 – 100%, B = 80 – 89%, C = 70 – 79%, D = 60 – 69%, and F = below 60%.

VIII. Attendance

Students are expected to attend all classes for which they are registered. Students who are unable to attend class regularly, regardless of the reason or circumstance, should withdraw from that class before poor attendance interferes with the student's ability

to achieve the objectives required in the course. Withdrawal from class can affect eligibility for federal financial aid.

IX. Statement on Discrimination/Harassment

It is the official policy of the Alabama Community College System and entities under its control, including all Colleges, that no person shall be discriminated against on the basis of any impermissible criterion or characteristic, including, without limitation, race, color, national origin, religion, marital status, disability, sex, age, or any other protected class as defined by federal and state law. (ACCS Policies 601.02 and 800.00)

X. Americans with Disabilities

The Rehabilitation Act of 1973 (Section 504) and the *Americans with Disabilities Act* of 1990 state that qualified students with disabilities who meet the essential functions and academic requirements are entitled to reasonable accommodations. It is the student's responsibility to provide appropriate disability documentation to the College.