

**MAT 060**  
**ESSENTIAL MATHEMATICS**

**COURSE DESCRIPTION:**

Prerequisites: MAT 050 or satisfactory score on placement test

Corequisites: RED 080 or ENG 085

This course is a comprehensive study of mathematical skills which should provide a strong mathematical foundation to pursue further study. Topics include principles and applications of decimals, fractions, percents, ratio and proportion, order of operations, geometry, measurement, and elements of algebra and statistics. Upon completion, students should be able to perform basic computations and solve relevant, multi-step mathematical problems using technology where appropriate. Course Hours Per Week: Class, 3. Lab, 2. Semester Hours Credit, 4.

**LEARNING OUTCOMES:**

At the completion of this course, the student should be able to:

- a.) Demonstrate numerical proficiency and knowledge of concepts with respect to percent, measurement, plane geometry, descriptive statistics, signed numbers, and basic algebra.
- b.) Demonstrate mathematical reasoning ability and number sense.
- c.) Solve multi-step applied problems which require a synthesis of knowledge acquired in course.
- d.) Apply mathematics in a real-world context via a comprehensive project.

**OUTLINE OF COMPETENCIES:**

- a. Perform operations with fractions and decimals.
- b. Write ratios as fractions in lowest terms.
- c. Write proportions in fraction form and decide if proportions are true.
- d. Find the missing number in a proportion.
- e. Use proportions to solve word problems.
- f. Write percents as decimals and fractions.
- g. Write decimals and fractions as percents.
- h. Solve percent problems.
- i. Solve applications of percents.
- j. Change from one unit of measurement to another within the American and metric systems.
- k. Convert units of measurement between the American and metric systems.
- l. Name lines, line segments, and rays.
- m. Label pairs of lines as parallel, perpendicular, or intersecting.
- n. Identify angles as complementary, supplementary, or congruent.
- o. Find the perimeter and area of parallelograms, trapezoids, and triangles.

- p. Find the radius, diameter, circumference, and area of circles.
- q. Find the volume of three-dimensional figures.
- r. Use the Pythagorean Theorem.
- s. Identify similar triangles and utilize in applications.
- t. Graph signed numbers on a number line.
- u. Add, subtract, multiply, and divide signed numbers.
- v. Evaluate expressions and formulas.
- w. Solve simple linear equations.
- x. Solve word problems by means of simple linear equations.
- y. Interpret circle, bar, and line graphs.
- z. Analyze numerical data via the mean, median, and mode.

**REQUIRED TEXTBOOKS AND MATERIALS:**

Miller, O'Neill, Hyde. Basic College Mathematics. 2<sup>nd</sup> ed. McGraw-Hill, 2009.

Scientific Calculator.

**STATEMENT FOR STUDENTS WITH DISABILITIES:**

Students who require academic accommodations due to any physical, psychological, or learning disability are encouraged to request assistance from a disability services counselor within the first two weeks of class. Likewise, students who potentially require emergency medical attention due to any chronic health condition are encouraged to disclose this information to a disability services counselor within the first two weeks of class. Counselors can be contacted by calling 536-7207, ext. 1413 or by visiting the Student Development Office in the Phail Wynn Jr. Student Services Center, room 1309.