

MAT 122 Algebra/Trigonometry II

COURSE DESCRIPTION:

Prerequisite(s): MAT 121

Corequisite(s): none

This course is designed to cover concepts in algebra, function analysis, and trigonometry. Topics include exponential and logarithmic functions, transformations of functions, Law of Sines, Law of Cosines, vectors, and statistics. Upon completion, students should be able to demonstrate the ability to use mathematics and technology for problem-solving, analyzing and communicating results.

Course Hours Per Week: Class, 2. Lab, 2. Semester Hours Credit, 3.

LEARNING OUTCOMES:

Upon completing requirements for this course, the student will be able to:

1. Solve relevant contextual problems involving exponential and logarithmic functions
2. Interpret and create transformations of functions.
3. Utilize the Law of Sines and Law of Cosines to solve oblique triangles and their applications.
4. Define vectors and compute vector operations.
5. Apply vector concepts to solve applications.
6. Employ basic statistical concepts to summarize and present data and draw conclusions.

OUTLINE OF INSTRUCTION:

- I. Trigonometric Functions of any Angle
 - A. Signs of the trigonometric functions
 - B. Trigonometric functions of any angle
 - C. Radians
 - D. Applications of radian measure
- II. Graphs of the Trigonometric Functions
 - A. Graphs of $y = a \sin x$ and $y = a \cos x$
 - B. Graphs of $y = a \sin bx$ and $y = a \cos bx$
 - C. Graphs of $y = a \sin (bx+c)$ and $y = a \cos (bx+c)$
 - D. Graphs of $y = \tan x$, $y = \cot x$, $y = \sec x$ and $y = \csc x$
 - E.

V.