

MATHEMATICS 111
COLLEGE ALGEBRA & TRIGONOMETRY

I. Introduction

A. Catalog Description

College Algebra and Trigonometry presents the basic concepts of algebra and trigonometry needed for future courses in mathematics, science, business or the behavioral and social sciences. It includes a review of elementary algebra, introduction to functions, exponential and logarithmic functions and equations and trigonometric functions. *Prerequisite: Three years of high school mathematics.* Does not satisfies the Mathematical Reasoning core requirement.

B. Objectives

The objective of College Algebra and Trigonometry is to provide the student with the basic concepts of algebra and trigonometry and the mathematical maturity needed for further courses in mathematics, science, business or the behavioral and social sciences. Students will learn to use technology appropriate for problem solving using elementary functions.

C. Prerequisites

Three years of high school mathematics.

Mathematics 111 does not satisfy the mathematical reasoning requirement within the University's core curriculum.

II. Required Topics

A. Review of elementary algebra

1. Complex number system
2. Properties of real numbers
3. Addition, subtraction, multiplication, factoring of polynomials
4. Rational expressions and rational exponents
5. Linear, absolute value, quadratic, and radical equations
6. Linear, absolute value, quadratic, inequalities
7. Coordinate geometry and graphing techniques

- B. Introduction to functions
 - 1. Linear and quadratic functions
 - 2. Graphs and transformations
 - 3. Inverses
- C. Exponential and logarithmic functions and equations
- D. Trigonometric functions
 - 1. Definitions, properties, and graphs
 - 2. Analytic trigonometry
 - Identities
 - Formulas
 - Equations
 - 3. Trigonometry: measuring triangles
 - Right triangle trigonometry and applications
 - Laws of sines and cosines
- III. Optional Topics
Analytic geometry: the conic sections
- IV. Bibliography
Swokowski, Earl W. and Jeffery A. Cole, Algebra and Trigonometry with Analytical Geometry, Brooks/Cole Publishing Company

Hungerford, Thomas W., Contemporary Precalculus, Saunders College Publishing

Larson, Roland E., Robert P. Hostetler, Bruce H. Edwards, Precalculus Functions and Graphs, Houghton Mifflin Company
- V. Assessment Tools
Assessment of the extent to which a student meets the course objectives could be measured with homework, worksheets, projects, quizzes, and exams.