

Department of Mathematics
Syllabus

I. MATH 110 – Trigonometry – 2 credits

II. Catalog Description

For students preparing to take calculus who need additional background in trigonometry. Beginning with angles, numerical trigonometry and triangle solving, it develops the concepts and analytical skills required in calculus: identities, inverse functions, trigonometric equations, graphs and applications.

Prereq: MATH 101 or math placement testing/evaluation before registration, and high school algebra I, II and geometry.

III. Objectives

In this course, we will cover material from Trigonometry that you need in order to succeed in Precalculus and the Calculus sequence. The student will master basic ideas of trigonometry such as: angle measure in radians and degrees, definitions of the trigonometric functions via the unit circle and right triangles, graphs of the six trigonometric functions and transformations thereof, inverse trigonometric functions, trigonometric identities, solving trigonometric equations, Law of Sines, and Law of Cosines. The student will utilize the concepts developed to solve related problems.

IV. Course outline

A. Introductory Concepts

1. Angles and angle measure
2. Units of angle measure
3. Degree – radian relationships
4. Applications involving radian measure

B. Trigonometric Functions

1. Trigonometric functions for acute angles
2. Using the calculators to evaluate trigonometric functions
3. Angles in standard position
4. Trigonometric functions of angles of any size
5. Evaluating trigonometric functions
6. Circular functions
7. Periodic properties and graphs of trigonometric functions

C. Solving Triangles

1. Right triangles
2. Law of cosines
3. Law of sines

D. Identities

1. Basic identities
 2. Sum and differences identities
 3. Double-angle formulas
 4. Half angle formulas
- E. Inverse Trigonometric Functions
1. Introduction
 2. Inverse sine and inverse cosine
 3. Inverse tangent and inverse cotangent
 4. Domain and range
- F. Trigonometric Equations
1. Conditional equations
 2. Quadratic equations involving trigonometric functions
 3. Equations of the form $a \sin x + b \cos x = c$
 4. Equations involving functions of multiple angles
 5. Using identities in solving equations
 6. Solutions involving algebraic methods
 7. Solutions involving identities
- G. Graphs of Trigonometric Functions
1. Graphs of general sine and cosine functions
 2. Graphs of tangent and cotangent functions
 3. Graphs of cosecant and secant

V. Suggested Text

Baley, J. D. and Sarell, G. (2003). Trigonometry, 3rd Edition. The McGraw-Hill Companies, Inc.: New York, NY. ISBN: 0-07-283337-8

VI. General Education Credit

This course cannot be taken for general education credit.