

Mathematics 1303
Trigonometry with Analytic Geometry

Student Learning Outcomes

- 1. Students will demonstrate factual knowledge including the mathematical notation and terminology used in this course.** Students will read, interpret, and use the vocabulary, symbolism, and basic definitions, theorems, and equations used in trigonometry and analytic geometry. (See course content below for more detail.)
- 2. Students will describe the fundamental principles including the laws and theorems arising from the concepts covered in this course.** Students will identify and apply the laws and formulas that result directly from the definitions; for example, the fundamental trigonometric identities, properties of angles and triangles, and characteristics of the graphs of lines, conic sections, polynomial functions, and rational functions.
- 3. Students will apply course material along with techniques and procedures covered in this course to solve problems.** Students will use the facts, formulas, and techniques learned in this course to prove identities; solve various types of triangle problems involving angle of elevation/depression, bearing, and indirect measurement; applications of lines and conic sections.
- 4. Students will develop specific skills, competencies, and thought processes sufficient to support further study or work in this field or related fields.** Students will acquire a level of proficiency in the fundamental concepts and applications necessary for further study in academic areas requiring trigonometry and analytic geometry as a prerequisite, or for work in occupational fields requiring this background. These fields might include education, business, finance, marketing, computer science, physical sciences, and engineering, as well as mathematics.

Course Content

Textbook: *College Algebra & Trigonometry*, 5th Edition, by Lial, Hornsby, and Schneider
Homework will be done on-line using MyMathLab, so make sure you purchase the MML access code.

The following chapters, including the particular sections listed, will be covered.
(See “Contents” at the front of the textbook.)

2. Graphs and Functions. Rectangular Coordinates and Graphs, Circles, Functions, Linear Functions, Equations of Lines, Graphs of Basic Functions, Graphing Techniques
3. Polynomial and Rational Functions. Quadratic Functions and Models, Polynomial Functions, Rational Functions
5. Trigonometric Functions. Angles, Trigonometric Functions, Evaluating Trigonometric Functions, Solving Right Triangles
6. The Circular Functions and Their Graphs. Radian Measure, The Unit Circle and Circular Functions, Graphs of the Sine and Cosine Functions, Translations of the Graphs of the Sine and Cosine Functions, Graphs of the Tangent, Cotangent, Secant, and Cosecant Functions
7. Trigonometric Identities and Equations. Fundamental Identities, Verifying Trigonometric Identities
8. Applications of Trigonometry. The Law of Sines, The Law of Cosines
10. Analytic Geometry. Parabolas, Ellipses, Hyperbolas, Summary of the Conic Sections