

Mathematics 1316 - Trigonometry
Monday – Friday
5th Period, Room 112

Terri Petty Sweetwater High School
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Conference: 4thPeriod

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Course Description

MATH 1316 Trigonometry with Analytic Geometry (3 college credits): Trigonometric functions, radian measure, solutions of triangles, graphs of trigonometric functions, trigonometric identities, trigonometric equations, polar coordinates, vectors, and conic sections.

Since this class functions as both a high school junior/senior mathematics class and a dual credit College Algebra class, it will not only cover TEKS 111.42, but also the Core Curriculum Student Learning Objectives used in Texas colleges.

Textbook: *PreCalculus with Limits*, 2007, by Larson and Holstetler.

Prerequisite: Completion of Mathematics Texas Success Initiative (TSI) requirements.

Grading for each 6 week grading period: Tests 80%, Quizzes 10%, Homework 10%

Grading for final semester grade: Six week grades and Final Exam each 25%

Your Responsibilities: This is a college course. You will be held to the same standards as college students. In order to be successful, you must apply yourself to learn. To do this, you must take notes, do homework, study for exams, and ask questions. Homework is designed to prepare you for tests. Therefore, to be successful requires doing homework.

Absences: If you will be absent on an assessment day, you must make arrangements to take the assessment prior to your absence or the day the you return. If you miss a lecture, have a friend send you a copy of the notes.

Assignments: Assignments will be posted in Remind. Each weeks' assignments are due the following Monday, regardless of how many absences you had during the week (except for certain extenuating circumstances). Ten points will be deducted per day that each assignment is late, up to Friday. After Friday, late work will not be excepted.

Exams: Exams are to be finished during class time. No additional time will be given. If you cheat, you will be given a zero with no option to retake the exam. To receive credit for a question, you must show your work clearly, orderly, and legibly.

Calculators: Calculator use will depend on the topic being studied. Calculators are used for some lessons and not for others. While in class you may use my graphing calculators. They may not, however, be removed from my classroom.

Cell Phones: Cell phone use in class is strictly prohibited. I will remove them from you if I see them.

Ethics: Angelo State University expects its students to maintain complete honesty and integrity in their academic pursuits. Students are responsible for understanding the Academic Honor Code, which is available on the web at <http://www.angelo.edu/forms/pdf/honorcode5.pdf>.

Disabilities: Persons with disabilities which may warrant academic accommodations must contact the Student Affairs Office, in order to request such accommodations prior to any accommodations being implemented. You are encouraged to make this request early in the semester so that appropriate arrangements can be made.

Ms. Dallas A. Swafford, Director of Student Disability Services
Houston Harte University Center, Suite 112 Phone: 325-942-2047 or by E-mail:
dallas.swafford@angelo.edu

Student Learning Outcomes

- 1. The 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 used in trigonometry including definitions of the six trigonometric functions; types of angle measure and notation; equations of conic sections; representing equations in polar coordinates; and the definition of vectors.
- 2. The 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 identities, properties of angles and triangles, characteristics of the trigonometric functions, inverse trigonometric functions, polar equations (including graphs), and formulas for converting between polar and rectangular coordinates.
- 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 and solve trigonometric equations; and solve various types of triangle problems, distance and navigation problems, and linear and angular velocity problems.
- 4. The Student 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 as a prerequisite, or for work in occupational fields requiring a background in trigonometry. These fields might include education, business, finance, marketing, computer science, physical sciences, and engineering, as well as mathematics.

Course Content

- 1. Graphs and Functions.** Graphs of Equations in Two Variables; Circles; Functions and Their Graphs; Properties of Functions; Library of Functions; Piecewise-defined Functions; Graphing Techniques: Transformations; One-to-one Functions; Inverse Functions
- 2. Trigonometric Functions.** Angles and Their Measure; Trigonometric Functions: Unit Circle Approach; Properties of the Trigonometric Functions; Graphs of the Sine and Cosine Functions; Graphs of the Tangent, Cotangent, Cosecant, and Secant Functions; Phase Shift; Sinusoidal Curve Fitting
- 3. Analytic Trigonometry.** The Inverse Sine, Cosine, and Tangent Functions; The Inverse Trigonometric Functions (continued); Trigonometric Equations; Trigonometric Identities; Sum and Difference Formulas; Double-angle and Half-angle Formulas; Product-to-Sum and Sum-to-Product Formulas
- 4. Applications of Trigonometric Functions.** Right Triangle Trigonometry; Applications; Law of Sines; Law of Cosines; Area of a Triangle
- 5. Polar Coordinates; Vectors.** Polar Coordinates; Polar Equations and Graphs; Vectors; The Dot Product; Vectors in Space; The Cross Product
- 6. Analytic Geometry.** The Parabola; The Ellipse; The Hyperbola; Polar Equations of Conics; Plane Curves and Parametric Equations.