Math 1316: Trigonometry with Analytic Geometry

Disclaimer
This syllabus is current and accurate as of its posting date, but will not be updated. For the most complete and up-to-date course information, contact the instructor.

Instructor Information
Dr. Dionne T. Bailey
Office: MCS 220G
Phone: 325-486-5425
Email: Dionne.Bailey@angelo.edu

Office Hours

<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
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<tr>
<td>Monday</td>
<td>9:00-10:00; 1:00-3:00 in Math Lab</td>
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<tr>
<td>Tuesday</td>
<td>11:00-12:30</td>
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<td>Wednesday</td>
<td>9:00-10:00; 1:00-3:00</td>
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<tr>
<td>Thursday</td>
<td>11:00-12:30</td>
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<tr>
<td>Friday</td>
<td>9:00-10:00</td>
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Tests
We will have three tests and a cumulative final examination. The exact dates and coverage of these tests will be announced in class. However, as a planning guide, you may expect to take the first test during the fifth week of classes, the second test during the ninth week of classes, and the third test during the fourteenth week of classes. The final exam will be held as specified in the course schedule. I do not intend to give makeup tests. That means you need to be present and ready to do your best each day, but especially on test days.

Daily Work
Daily work will consist primarily of homework problems from the textbook, supplemented by some in-class quizzes. Late work, including in-class quizzes for which you were absent, is not accepted.

Grade Calculations
Your grade on the daily work will count for 10%, your test average will count for 60%, and the cumulative final examination will count for 30%.

The following grading scale is in use for this course:
A = 90.00-100
B = 80.00-89
C = 70.00-79
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.

Required Texts and Readings


Subject Matter

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

**Prerequisite**
Mathematics 1314 or a suitable score on a placement exam.

**Course Schedule**
The subject matter schedule listed below is tentative, and subject to change and adaptation. For current, updated information about course topics, contact the instructor.

<table>
<thead>
<tr>
<th>Week</th>
<th>Topics</th>
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<tbody>
<tr>
<td>1</td>
<td>Sections 1.2, 1.3, 1.4</td>
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<tr>
<td>2</td>
<td>Sections 1.5, 1.6, 1.7</td>
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<tr>
<td>3</td>
<td>Sections 2.1, 2.2, 2.3</td>
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<tr>
<td>4</td>
<td>Sections 2.4, 2.5</td>
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<td>5</td>
<td>Sections 2.6, <strong>Exam 1</strong></td>
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<tr>
<td>6</td>
<td>Sections 3.1, 3.2</td>
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<td>7</td>
<td>Sections 3.3, 3.4</td>
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<tr>
<td>8</td>
<td>Sections 3.5, 3.6, 3.7</td>
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<tr>
<td>9</td>
<td>Sections 4.1, <strong>Exam 2</strong></td>
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<tr>
<td>10</td>
<td>Sections 4.2, 4.3, 4.4</td>
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<tr>
<td>11</td>
<td>Sections 5.1, 5.2</td>
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<tr>
<td>12</td>
<td>Sections 5.4, 5.5, 5.6</td>
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<tr>
<td>13</td>
<td>Sections 5.7, 6.2, 6.3</td>
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<td>14</td>
<td><strong>Exam 3</strong></td>
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<tr>
<td>15</td>
<td>Sections 6.4, 6.6, 6.7</td>
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**General Policies Related to This Course**
All students are required to follow the policies and procedures presented in these documents:

- [Angelo State University Student Handbook](#)
- [Angelo State University Catalog](#)
**Academic Integrity**

Students are expected to maintain complete honesty and integrity in all work. Any student found guilty of any form of dishonesty in academic work is subject to disciplinary action and possible expulsion from ASU.

The College of Science and Engineering adheres to the university’s [Statement of Academic Integrity](#).

**Plagiarism**

Plagiarism is a serious topic covered in ASU’s [Academic Integrity policy](#) in the Student Handbook. Plagiarism is the action or practice of taking someone else’s work, idea, etc., and passing it off as one’s own. Plagiarism is literary theft.

In your discussions and/or your papers, it is unacceptable to copy word-for-word without quotation marks and the source of the quotation. It is expected that you will summarize or paraphrase ideas giving appropriate credit to the source both in the body of your paper and the reference list.

Papers are subject to be evaluated for originality. Resources to help you understand this policy better are available at the [ASU Writing Center](#).

**Copyright Policy**

Students officially enrolled in this course should make only one printed copy of the given articles and/or chapters. You are expressly prohibited from distributing or reproducing any portion of course readings in printed or electronic form without written permission from the copyright holders or publishers.

**Accommodations for Students with Disabilities**

ASU is committed to the principle that no qualified individual with a disability shall, on the basis of disability, be excluded from participation in or be denied the benefits of the services, programs or activities of the university, or be subjected to discrimination by the university, as provided by the Americans with Disabilities Act of 1990 (ADA), the Americans with Disabilities Act Amendments of 2008 (ADAAA) and subsequent legislation.

Student Disability Services is located in the Office of Student Affairs, and is the designated campus department charged with the responsibility of reviewing and authorizing requests for reasonable accommodations based on a disability. It is the student’s responsibility to initiate such a request by contacting an employee of the Office of Student Affairs, in the Houston Harte University Center, Room 112, or contacting the department via email at [ADA@angelo.edu](mailto:ADA@angelo.edu). For more information about the application process and requirements, visit the [Student Disability Services website](#). The employee charged with the responsibility of reviewing and authorizing accommodation requests is:
Incomplete Grade Policy

It is policy that incomplete grades be reserved for student illness or personal misfortune. Please contact faculty if you have serious illness or a personal misfortune that would keep you from completing course work. Documentation may be required. See ASU Operating Policy 10.11 Grading Procedures for more information.

Student Absence for Observance of Religious Holy Days

A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. See ASU Operating Policy 10.19 Student Absence for Observance of Religious Holy Day for more information.

Title IX at Angelo State University

Angelo State University is committed to providing and strengthening an educational, working, and living environment where students, faculty, staff, and visitors are free from sex discrimination of any kind. In accordance with Title VII, Title IX, the Violence Against Women Act (VAWA), the Campus Sexual Violence Elimination Act (SaVE), and other federal and state laws, the University prohibits discrimination based on sex, which includes pregnancy, and other types of Sexual Misconduct. Sexual Misconduct is a broad term encompassing all forms of gender-based harassment or discrimination and unwelcome behavior of a sexual nature. The term includes sexual harassment, nonconsensual sexual contact, nonconsensual sexual intercourse, sexual assault, sexual exploitation, stalking, public indecency, interpersonal violence (domestic violence or dating violence), sexual violence, and any other misconduct based on sex.

You are encouraged to report any incidents involving sexual misconduct to the Office of Title IX Compliance and the Director of Title IX Compliance/Title IX Coordinator, Michelle Boone, J.D. You may submit reports in the following manner:

Online: www.angelo.edu/incident-form
Face to face: Mayer Administration Building, Room 210
Phone: 325-942-2022
Email: michelle.boone@angelo.edu

Note, as a faculty member at Angelo State, I am a mandatory reporter and must report incidents involving sexual misconduct to the Title IX Coordinator. Should you wish to speak to someone in confidence about an issue, you may contact the University Counseling Center.
(325-942-2371), the 24-Hour Crisis Helpline (325-486-6345), or the University Health Clinic (325-942-2171).

For more information about resources related to sexual misconduct, Title IX, or Angelo State’s policy please visit: www.angelo.edu/title-ix.

i https://www.angelo.edu/student-handbook/
ii https://www.angelo.edu/catalogs/
iii http://www.angelo.edu/student-handbook/community-policies/academic-integrity.php
iv http://www.angelo.edu/student-handbook/community-policies/academic-integrity.php
v http://www.angelo.edu/dept/writing_center/academic_honesty.php
vi https://www.angelo.edu/services/disability-services/
vii https://www.angelo.edu/content/files/14197-op-1011-grading-procedures
viii https://www.angelo.edu/content/files/14206-op-1019-student-absence-for-observance-of