MATH 1316.020
Trigonometry with Analytic Geometry

Instructor: Mrs. Ashlee Fuchs

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Office: MCS 220E

Office Hours:
Monday: 9:00 – 10:00am
Tuesday: 12:30 – 2:15pm
Wednesday: 9:00 – 10:00am; 1:00 – 2:15pm
Thursday: 12:30 – 2:15pm
Friday: 9:00 – 10:00am; 11:00am – 1:15pm
Note: Office hours can be attended in person or virtually. Scheduling an appointment for office hours is strongly preferred. Appointments are scheduled using Navigate and more instructions can be found in Blackboard.

Course Information

Course Description

Trigonometric functions, radian measure, solutions of triangles, graphs of trigonometric functions, trigonometric identities, trigonometric equations, polar coordinates, vectors, and conic sections.

Prerequisite

MATH 1314 or a suitable score on a placement exam.

Student Learning Outcomes

Upon completion of this course, students will be able to:

1. **Students will demonstrate factual knowledge of 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. **Students will be able to 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. **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 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.

Student Expectations

- Maintain academic honesty.
- Complete each assignment by the specified due date.
- Be a positive influence in classroom learning environment by being courteous and respectful to everyone in class. This includes office hours and written communication via e-mail.
- It is your responsibility to put in as much effort as it takes to earn your desired grade. This includes utilizing (as needed) all available study aid options (attending office hours and/or getting help from the Math Lab, emailing the instructor, etc.) to resolve any questions or concerns you might have about any aspect of the course.

Course Delivery

This is a face-to-face course with online components that students are expected to access in Blackboard.[1]

Required Texts and Materials

The textbooks for this class are open-source and available for free online, in web view and PDF format. You can also purchase a print version, if you prefer.

1. ***Algebra and Trigonometry*** from OpenStax:
   https://openstax.org/details/books/algebra-and-trigonometry,
   Print ISBN 1938168372, Digital ISBN 1947172107

2. ***Intermediate Algebra*** from OpenStax:
   https://openstax.org/details/intermediate-algebra,
   Print ISBN 9781975076498, Digital ISBN 9781951693244

3. ***Precalculus*** from OpenStax:
   https://openstax.org/details/books/precalculus,
   Print ISBN 1938168348, Digital ISBN 1947172069

Algebra and Trigonometry: **Table of Contents**
2. Equations and Inequalities. Rectangular Coordinate Systems and Graphs

3. Functions. Functions and Function Notation; Domain and Range; Transformation of Functions; Inverse Functions

7. The Unit Circle: Sine and Cosine Functions. Angles; Right Triangle Trigonometry; Unit Circle; The Other Trigonometric Functions.

8. Periodic Functions. Graphs of the Sine and Cosine Functions; Graphs of the Other Trigonometric Functions; Inverse Trigonometric Functions.

9. Trigonometric Identities and Equations. Solving Trigonometric Equations with Identities; Sum and Difference Identities; Double-Angle, Half-Angle, and Reduction Formulas; Sum-to-Product and Product-to-Sum Formulas; Solving Trigonometric Equations.

10. Further Applications of Trigonometry. Non-Right Triangles: Law of Sines; Non-Right Triangles: Law of Cosines; Polar Coordinates; Polar Coordinates: Graphs; Parametric Equations; Parametric Equations: Graphs; Vectors.

Intermediate Algebra: **Table of Contents**
11. Conics. Distance and Midpoint Formulas; Circles.

Precalculus: **Table of Contents**
10. Analytic Geometry. The Ellipse; The Hyperbola; The Parabola; Conic Sections in Polar Coordinates.

Technology Requirements

To successfully complete this course, you will need

- A scanner (or a scanning app for your phone),
- Webcam and microphone (Most laptops come equipped with both a webcam and microphone.)
- Access to a printer (If you don't have your own, there are printers in the computer labs on campus for you to use.)

Communication

I will do my best to respond to email messages within 24 hours during working hours Monday through Friday. Weekend messages may not be returned until Monday.

Written communication via email: All private communication will be done exclusively through your ASU email address. Check frequently for announcements and policy changes. In your emails to faculty, include the course name and section number in your subject line.

Grading

Evaluation and Grades

Course grades will be determined as indicated in the table below.

Assessment	Percent of Total Grade
Attendance/Quizzes	5
Homework	15
Exams (4 @ 15% each)	60
Final Exam	20

Grading System

Course grades will depend on completing course requirements and meeting the student learning outcomes.

This course uses the following grading scale:

A = 90.00-100 points
B = 80.00-89.99 points
C = 70.00-79.99 points
D = 60.00-69.99 points
F = 0-59.99 points

Attendance Policy

Attendance is a required part of your grade.

- If you are in class and actively participating, you will receive a 100 for a daily grade.
- If you are tardy, it is your responsibility to let me know after class so I can change my records.
- If you are absent (not physically present) then you will receive a 0 for a daily grade.
- To be counted virtually present and have your 0 removed (changed to a 100) **you must notify me via email by 1:00pm of the day of your absence from class**. Watch the recording of the lecture and fill in your notes as you watch. Once complete, you must upload a scan of your notes into the designated spot in Gradescope before the next class meeting.

Homework Policy

- Homework will be assigned over every section covered. Each section will include traditional pencil and paper homework from the textbook.
- Pencil and paper homework will be submitted in **Gradescope.**

- Homework is due ***on Tuesdays and Fridays at 11:59pm***.
- ***No late homework will be accepted.***
- You will need to scan pictures of every page of your homework, convert it to a pdf file, and upload it to Gradescope.
- ***It is your responsibility to make sure the upload is successful before the assignment is due.***
- If you need assistance with an assignment, see me for help ***before*** it is due.
- I will drop 3 homework grades at the end of the semester to compensate for unavoidable circumstances.
- Box and/or highlight your answers.
- Write legibly. If your answer cannot be read, it is wrong. Show all necessary work.

Exams/Final Exam

- There will be 4 exams during the semester and a cumulative final. All exams will be paper and pencil format.
- **There will be no make-up exams**. If you do miss an exam for any reason, please contact me immediately.
- If it benefits you, your final exam grade may replace your lowest test grade. This means that if you miss one exam, your final exam grade will replace it. If you miss an additional exam, you will receive a grade of zero for it.
- The dates below are tentatively scheduled.

Exam	Date
Exam 1	Friday, February 11th
Exam 2	Friday, March 4th
Exam 3	Friday, April 1st
Exam 4	Friday, April 29th
Final Exam	Monday, May 9th 10:30am – 12:30pm

Math Lab

There is a free math lab where you can do your homework and get help with it. It is located on the third floor of the library in room C302. Math Lab Hours can be found at this location on the Angelo State University website:
http://www.angelo.edu/dept/mathematics/lab_hours.php

Drop Date

The last day to drop a class is Thursday, April 28, 2022.

Course Schedule

Day	Date	OpenStax Textbook	Section(s)/Topic(s)
1	W 01/19	***Syllabus***	
2	F 01/21	*Algebra and Trigonometry*	2.1 Rectangular Coordinate System and Graphs
3	M 01/24	*Intermediate Algebra*	11.1 Distance and Midpoint Formula; Circles
4	W 01/26	*Algebra and Trigonometry*	3.1 Functions and Function Notation, 3.2 Domain and Range
5	F 01/28	*Algebra and Trigonometry*	3.5 Transformations of Functions
6	M 01/31	*Algebra and Trigonometry*	3.7 Inverse Functions
7	W 02/02	*Algebra and Trigonometry*	7.1 Angles
8	F 02/04	*Algebra and Trigonometry*	7.1 Angles 7.2 Right Triangle Trigonometry
9	M 02/07	*Algebra and Trigonometry*	7.2 Right Triangle Trigonometry
10	W 02/09	*Algebra and Trigonometry*	7.3 Unit Circle, Review
11	**F 02/11**	***Exam 1***	
12	M 02/14	*Algebra and Trigonometry*	7.3 Unit Circle Activity
13	W 02/16	*Algebra and Trigonometry*	7.3 Unit Circle 7.4 The Other Trigonometric Functions
14	F 02/18	*Algebra and Trigonometry*	7.4 The Other Trigonometric Functions
15	M 02/21	*Algebra and Trigonometry*	8.1 Graphs of the Sine and Cosine Functions
16	W 02/23	*Algebra and Trigonometry*	8.1 Graphs of the Sine and Cosine Functions 8.2 Graphs of the Other Trigonometric Functions
17	F 02/25	*Algebra and Trigonometry*	8.2 Graphs of the Other Trigonometric Functions
18	M 02/28	*Algebra and Trigonometry*	8.3 Inverse Trigonometric Functions
19	W 03/02	*Algebra and Trigonometry*	8.3 Inverse Trigonometric Functions 9.1 Solving Trigonometric Equations with Identities
20	**F 03/04**	***Exam 2***	
21	M 03/07	*Algebra and Trigonometry*	9.1 Solving Trigonometric Equations with Identities
22	W 03/09	*Algebra and Trigonometry*	9.2 Sum and Difference Identities
23	F 03/11	*Algebra and Trigonometry*	9.2 Sum and Difference Identities 9.3 Double-Angle, Half-Angle, & Reduction Formulas
24	M 03/21	*Algebra and Trigonometry*	9.3 Double-Angle, Half-Angle, & Reduction Formulas
25	W 03/23	*Algebra and Trigonometry*	9.4 Sum-to-Product and Product-to-Sum Formulas
26	F 03/25	*Algebra and Trigonometry*	9.4 Sum-to-Product and Product-to-Sum Formulas 9.5 Solving Trigonometric Equations
27	M 03/28	*Algebra and Trigonometry*	9.5 Solving Trigonometric Equations
28	W 03/30	*Algebra and Trigonometry*	10.1 Non-Right Triangles: Law of Sines
29	**F 04/01**	***Exam 3***	
30	M 04/04	*Algebra and Trigonometry*	10.2 Non-Right Triangles: Law of Cosines
31	W 04/06	*Algebra and Trigonometry*	10.3 Polar Coordinates
32	F 04/08	*Algebra and Trigonometry*	10.4 Polar Coordinates: Graphs
33	M 04/11	*Algebra and Trigonometry*	10.6 Parametric Equations
34	W 04/13	*Algebra and Trigonometry*	10.7 Parametric Equations: Graphs

35	F 04/15	*Algebra and Trigonometry*	10.3/10.4 Polar Coordinates Review
36	M 04/18	*Precalculus*	10.8 Vectors
37	W 04/20	*Precalculus*	10.1 The Ellipse
38	F 04/22	*Precalculus*	10.2 The Hyperbola
39	M 04/25	*Precalculus*	10.3 The Parabola
40	W 04/27	*Precalculus*	Conic Section Review
41	F 04/29	***Exam 4***	
42	M 05/02	*Precalculus*	10.5 Conic Sections in Polar Coordinates
43	W 05/04	*ALL*	Review for Final Exam
44	F 05/06	*ALL*	Review for Final Exam
	M 05/09	***Final Exam***	10:30am-12:30pm

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[2]
- Angelo State University Catalog[3]

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 of disciplinary action and possible expulsion from ASU.

The College of Science and Engineering adheres to the university's Statement of Academic Integrity[4] (Page 97).

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. For more information about the application process and requirements, visit the Student Disability Services website.[5] The employee charged with the responsibility of reviewing and authorizing accommodation requests is:

Dr. Dallas Swafford
Director of Student Disability Services
Office of Student Affairs
325-942-2047
dallas.swafford@angelo.edu
Houston Harte University Center, Room 112

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[6] for more information.

Plagiarism

Plagiarism is a serious topic covered in ASU's Academic Integrity Statement[7] 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.

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[8] 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 Miller, J.D. You may submit reports in the following manner:

Online: Incident Reporting Form[9]
Face to Face: Mayer Administration Building, Room 210
Phone: 325-942-2022
Email: michelle.miller@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 the Title IX website.[10]

Information About COVID-19

Please refer to ASU's COVID-19 (Coronavirus) Updates[11] web page for current information about campus guidelines and safety standards as they relate to the COVID-19 pandemic.

Modifications to the Syllabus

This syllabus, including grade evaluation and course schedule, is subject to modification on potentially short notice based on developing circumstances.

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[1] https://blackboard.angelo.edu/
[2] https://www.angelo.edu/current-students/student-handbook/
[3] https://www.angelo.edu/academics/catalog/
[4] https://www.angelo.edu/live/files/27603-student-handbook-2020-21#page=97
[5] https://www.angelo.edu/current-students/disability-services/
[6] https://angelo.policystat.com/policy/10659448/latest/
[7] https://www.angelo.edu/live/files/27603-student-handbook-2020-21#page=97
[8] https://angelo.policystat.com/policy/10659368/latest/
[9] https://www.angelo.edu/incident-form
[10] https://www.angelo.edu/title-ix
[11] https://www.angelo.edu/covid-19/