

Math 1316.010 Summer 2021  
Trigonometry with Analytic Geometry  
Subject to changes and modifications



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## Instructor: Juan Montemayor

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Phone: 325-486-5438 (leave a message )

Office: MCS 219 F

### **Office Hours: See updated hours ( if there are any updates, on Bboard)**

All office hours are intended to be in person office hours but can be set up as virtual office hours - set up through emails and Blackboard Collaborate – Blackboard Course (webpage) will have updated information and official office hours. For now – the following hours are tentative office hours

**MTWThF: 9:15 AM – 9:45 AM and 12:00 PM - 12:30 PM**

## Course Information

### **Course Description – see course content at end of syllabus for additional information**

A quick review of basic algebraic concepts such as factoring polynomials and solving equations. Use of rectangular coordinate system to help sketch graphs of a library of functions. May also include some basic ideas on rectangular coordinate system such as distance and midpoint formulas and graphs of circles and half-circles.

Additional review of functions, their properties and their graphs. Some discussion on inverse functions. Introduction to trigonometric ideas such as angles, triangles, definition of trigonometric functions, inverse functions.

A look at definitions, graphs, and properties of trigonometric functions, fundamental and extended trigonometric identities, and also equations of trigonometric functions and a look at some inverse trigonometric functions. We may look at additional trigonometric identities.

A discussion on polar coordinates, parametric and polar equations and some graphs, and discussion on conic graphs and equations. See course content for additional description of topics.

## Prerequisite and Co-requisite Courses

Student should have basic arithmetic and **algebraic skills that allow the student to perform calculations with and without the use of a calculator**. Student should understand basic concepts of algebra such being able to solve equations and factor polynomials. Student should be able to extend algebraic ideas to trigonometric expressions. The student should be able to follow written and oral/verbal instructions and also have basic knowledge of computer technology.

## Prerequisite Skills

Student should be able to access Internet websites, use ASU Library resources as needed, have some proficiency with Microsoft Word and the ability, curiosity, and desire to learn more. Student should be able to use – learn – blackboard, blackboard collaborate, submit documents electronically in PDF format.

Although we do not make as much use of the calculator as you would like, make sure you are able to use non-graphing calculators. If you do happen to have graphing / non-graphing calculators – use them as needed to check your homework problems. Only to check your answers – answers should be non-calculator based.

**Calculators are not allowed on quizzes or exams**. Be able to scan or learn how to scan and submit documents such as homework and if necessary – exams and quizzes. Make sure all of your scans are in PDF format.

## Student Learning Outcomes

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

- 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

#### Textbook:

**Textbook is not required for class instructions but feel free to use the following text as a guide and for additional examples. My notes will normally be sufficient.**

*Trigonometry: A Unit Circle Approach*, Tenth Edition, by Sullivan. The following chapters including the particular sections listed are covered. (See textbook “Contents.”)

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

## Course Delivery

**This Is NOT an Online Course - The class is meant to be attended in person. Students are required to be in the classroom for class lectures**

### Statement for Synchronous Remote Sessions

To maintain academic quality while accommodating social distancing needs this semester, this course will use face-to-face teaching with some remote instruction as needed – this will be used only for students that have permission to view material online. These students may receive a link to view course. All other students must be in person. A video of course may or may not be available. Online use will be limited. ting – with some limited options such as being in the “classroom during indicated times such as class time – completing assignments during indicated times – and attending in class exams as required”. Although not likely to be needed - be prepared to go online on a moment(day) notice. Viewing a class video outside of class time is not considered being in class. Video may not be available. If too many students start being absent, a link to view vide will be made available to only those students that have a reason to be online - may require permission from student life office. **This is not an online course.**

Online students are expected to be online at the same time as in-person class. – attendance will be taken and used as part of class grade. The class video – when one is available - is meant to be seen during class time and not as a recording. You should have class time reserved so that you are able to view material during class time. Being at work and unable to be in class is not a good excuse for missing class. Attendance will be taken during scheduled class time. Special permission will be required from me and student services for you to be online and strict requirements will be used especially for test taking and for class attendance. In class attendance will produce the best academic results. You must take all tests in class. There are two students that because of distance have been granted permission to be online - tests may require some special requirements. This will be discussed in a one-on-one discussion.

Most - if not all assignments will be completed and due at a specific time. No late assignments will be accepted.

In some cases(most), you will also be expected to complete coursework via

[Blackboard](#).<sup>1</sup>

Please refer to this [Health and Safety web page](#) for updated information about campus guidelines as they relate to the COVID-19 pandemic.

## Required Texts and Materials- No Textbook is required

Not needed but feel free to buy as an additional resource - Text book is not required. You may find that online search for certain topics are just as useful as a required text.

Textbook available for purchase:

*Trigonometry: A Unit Circle Approach, Tenth Edition, by Sullivan.*

My notes will be sufficient for both in class notes and homework assignments.

You may be required (or suggested) to print assignments (quizzes–tests – homework). You may print both notes and assignments as needed. If you feel that you need additional help, you may find it in the following textbook or some other internet site of your choosing. **Selected chapters will be discussed.**

## Technology Requirements

To successfully complete this course, students need to be able to communicate via email(s) and through blackboard/blackboard collaborate.

All answers that are submitted must be non-calculator based

(  $3/7 \neq 0.4286$  or  $\sqrt{2} \neq 1.414$  ). Laptops / phones are only allowed in the classroom for instructional purposes. The instructor reserves the right to ask you to put away any technology equipment. Quizzes may be taken in the classroom with laptops or phones. Homework may be submitted during class times – if instructor allows. Phones/laptops can and should be used during submissions. They can not be used on any exam.

You should have access to scanning software – you will need to be able to scan documents. There are apps that can be used for scanning. For those of you that have an IPAD – lucky you. They seem to work better for downloading documents and writing on the screen. All submitted documents must be submitted as PDF documents.

Documents that are not in PDF format ( no google documents will be accepted ) will be counted as not being turned in.

I am not using Top Hat but if you have other classes that use it and you have the knowledge on how to use it, then feel free to use it in this class.

## Communication

We do not keep the same working hours. Keep that in mind when you send an email at 2:00 AM. I expect your emails to be sent between the hours of 8AM and 5 PM. I will respond as soon as possible. If you send an email, wait a minute (60 seconds) before you leave the site (computer email site). It is possible that I am in the office and will respond to your email within seconds. If you send an email after hours, odds are that I will get it but I may or may not see it. In any case if you send an email and I do not respond, don't give up – email me again. An unusual number of emails will normally send your email to the bottom of the stack. I will try to respond to emails and/or telephone messages within 24 hours during working hours Monday through Friday. Weekend messages may not be returned until Monday. If I do not respond, let me know. I may not have seen your email or you may have sent it with a non ASU email (don't).

Written communication via email: All private communication will be done exclusively through your ASU email address. Your other emails will be of no use for course work. Check frequently for announcements and policy changes – like daily. In your emails to faculty, include the course name and section number in your subject line.

Virtual communication: Office hours and/or advising will be done with the assistance of the telephone and Blackboard Collaborate.

Remember that you are sharing blackboard space with the entire class. Keep it official – as much as possible. Work group is encouraged on homework assignments – study sessions – and on any take-home exams. Feel free to join in, work together.

**No group work on quizzes and exams – those are for individual work.**

## Grading

### Evaluation and Grades

Course grades will be determined as indicated in the table below. There will be four major exams along with homework and quizzes throughout.

Homework = 12 % of semester grade

Quizzes = 8 % of semester grade

Exams = 80 % of semester grade

**Bonus:** based on attendance – will be discussed in class and it is up to the instructor's discretion. Bonus is meant for those attending in person. Attendance may be used to improve your homework and quiz average ( not to exceed a grade of 100)

**Due dates for assignments will be posted on Blackboard.**

<b>Assessment for each of the testing periods ( except last one)</b>	<b>Percent(fraction) of Total Grade for testing period</b>
Homework drop lowest of 8 assignments	12% of semester grade
Quizzes drop lowest three of 13 quizzes)	8 % of semester grade
Exams – you will have four exams final exam may be comprehensive and may also include take-home sections	80 % ( 20 % each) of semester grade
Attendance may be used by instructor as a bonus on HW and QZ average – up to instructor’s discretion	HW and QZ average cannot exceed 100
<b>Total</b>	<b>100 %</b>

## **Grading System**

Course grades will be dependent upon completing course requirements and meeting the student learning outcomes.

The following grading scale is in use for this course:

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 (Grades are not rounded up)

## **Assignment and Activity Descriptions**

All assignments (quizzes, and homework) will be turned in as PDF documents unless instructor requests actual document ( exams )

Scan the document (this does not mean to take a picture – a picture may be part of the process – you are scanning), save the document in PDF format on your computer – or however your phone stores the information. Submit through blackboard as a PDF document (no other form will be accepted). **No late work will be accepted.** There is no reason to miss an assignment and I will drop one homework assignment and three quizzes to account for missing one or two of them.

In the event that you have **a good reason and the instructor accepts your reason for missing one single exam**, the final exam may replace the grade of missed exam.

A second missed exam will be recorded as a zero.

# 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](#)<sup>2</sup>
- [Angelo State University Catalog](#)<sup>3</sup>

## 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](#).<sup>4</sup>

## 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](#).<sup>5</sup> The employee charged with the responsibility of reviewing and authorizing accommodation requests is:

Dallas Swafford  
Director of Student Disability Services  
Office of Student Affairs  
325-942-2047  
[dallas.swafford@angelo.edu](mailto: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](#)<sup>6</sup> for more information.

## **Plagiarism**

Plagiarism is a serious topic covered in ASU's [Academic Integrity policy](#)<sup>7</sup> 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](#).<sup>8</sup>

## **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](#)<sup>9</sup> for more information.

## **Title IX at Angelo State University**

The University prohibits discrimination based on sex, which includes pregnancy, sexual orientation, gender identity, and other types of Sexual Misconduct. Sexual Misconduct is a broad term encompassing all forms of gender-based harassment or discrimination including: sexual assault, sex-based discrimination, sexual exploitation, sexual harassment, public indecency, interpersonal violence (domestic violence and/or dating violence), and stalking. As a faculty member, I am a Responsible Employee meaning that I am obligated by law and ASU policy to report any allegations I am notified of to the Office of Title IX Compliance.

Students are encouraged to report any incidents of sexual misconduct directly to ASU's Office of Title IX Compliance and the Director of Title IX Compliance/Title IX Coordinator at:

Michelle Miller, J.D.  
Special Assistant to the President and Title IX Coordinator  
Mayer Administration Building, Room 210  
325-486-6357  
[michelle.boone@angelo.edu](mailto:michelle.boone@angelo.edu)

**You may also file a report online 24/7 at [www.angelo.edu/incident-form](http://www.angelo.edu/incident-form).**

If you are wishing to speak to someone about an incident in confidence you may contact the University Health Clinic and Counseling Center at 325-942-2173 or the ASU Crisis Helpline at 325-486-6345.

For more information about Title IX in general you may visit [www.angelo.edu/title-ix](http://www.angelo.edu/title-ix).

**Masks/Facial Coverings by Students - there is no requirement at time of this writing and none is expected. Feel free to use or not use masks.**

## Course Schedule – does not apply to this course

Due dates and assignments will be discussed in class

Date	Topic or Module	Activities	Homework	Homework Due Date

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<sup>1</sup> <https://blackboard.angelo.edu/>

<sup>2</sup> <https://www.angelo.edu/current-students/student-handbook/>

<sup>3</sup> <https://www.angelo.edu/academics/catalog/>

<sup>4</sup> <https://www.angelo.edu/live/files/27603-student-handbook-2020-21#page=96>

<sup>5</sup> <https://www.angelo.edu/current-students/disability-services/>

<sup>6</sup> <https://www.angelo.edu/content/files/14197-op-1011-grading-procedures>

<sup>7</sup> <https://www.angelo.edu/live/files/27603-student-handbook-2020-21#page=96>

<sup>8</sup> [https://www.angelo.edu/current-students/writing-center/academic\\_honesty.php](https://www.angelo.edu/current-students/writing-center/academic_honesty.php)

<sup>9</sup> <https://www.angelo.edu/content/files/14206-op-1019-student-absence-for-observance-of>