

## Math 1230    TRIGONOMETRY    Summer 2022

Instructor: Precious Andrew  
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Class Meets: Fully Online

Office Hours/Study Sessions (**feel free to stop by!**): (Tentatively-see updates in Canvas) Thursdays 2:45-3:45 in-person at Valencia WTC, Online via Zoom TBA (please email me for an appointment!)

### Course Description:

Welcome to a study of trigonometry! Together we'll explore the definitions of the fundamental trig functions using both the right triangle and unit circle approaches. We'll evaluate and graph trig functions and prove trigonometric identities, including double angle identities. We'll study the inverse trigonometric functions and apply our knowledge of right angle trigonometry and the laws of sines and cosines to applications. We'll wrap up the course with a study of complex numbers and 2D vectors.

**Textbook:** Ebook - Pre-calculus Mathematics for Calculus, 7<sup>th</sup> Edition, Stewart, Redlin, Watson

**Prerequisite:** Grade of C (not C-) or better in Math 1220.

**Grades:** Your grade will be based on the following allocation of points.

Worksheets/Assignments	100 points
Midterm Exam	100 points
Final Exam	150 points
<b>Total</b>	<b>350 points</b>

### How Grades Are Determined:

A+: 97-100%	A: 93-96%	A-: 90-92%	B+: 87-89%	B: 83-86%	B-: 80-82%
C+: 77-79%	C: 73-76%	C-: 70-72%	D+: 67-69%	D: 63-66%	D-: 60-62%
F: < 60%					

### Course Format:

**1 - You will be watching online lectures for each section.** Lectures are posted in Canvas via YouTube. These lectures should be watched in their entirety just as if you were in a classroom lecture. You should take careful notes on each and every example from each lecture. You should write down every example and all steps I show to reach a solution. These notes should be labeled clearly, organized, and neat and clear. Keep these in a notebook where you can easily access them.

**2 - You will submit written worksheets** approximately once-twice per week – see the assignments posted in Canvas for due dates. Worksheets must be organized and labeled, all work and steps must be shown, and must be presented consecutively, clearly, and legibly. You'll be submitting via Canvas. Worksheets must be submitted as one readable pdf file. You will print each worksheet, complete it, then use a scanner or scanner app on your device to create one pdf file of your completed worksheet to upload for a grade. The alternative is to complete your worksheets on a tablet using a stylus and submit a pdf of that work. **You may not use your own paper for the worksheets – you need access to either a printer or a tablet to complete the worksheets.** Note that most worksheets are already posted in Canvas. This means if you'll have difficulty accessing a printer, you could have them printed up mostly all at one time if necessary. The worksheets are designed to follow along with the lectures closely. I suggest filling them in as you watch the lectures.

**3 - You must complete written homework from the textbook for each section.** These problems are listed on the schedule towards the end of this document. **These are from your e-textbook, located in Canvas by clicking on the Redshelf link.** These are all odd problems, so you have the answers. Thus, it wouldn't make sense for me to grade these. These are for you to practice. **If you don't do these, you are very unlikely to succeed in the class. You need more practice than just the worksheets.**

**4 - You will complete a written midterm and a cumulative final.** These exams will appear in Canvas at the designated times. You will print the exam and complete it, then upload a pdf of your completed exam as you do the worksheets. All work needs to be shown and to be neat, clear, and in order or you will not receive credit. **The exams are not open book or notes, and you may not use a graphing or scientific calculator, phone, internet search, etc. You may not consult with anyone or receive help on the exams.** You should use only your writing instrument and a basic 4-function calculator, if you so choose, to complete the exam – nothing else. The use of anything beyond this on the exams may be considered academic dishonesty, may be reported to the Dean of Students, and may be grounds for receiving an F in the course.

### Tentative dates for exams:

Midterm Exam Friday, July 8, 2pm-4pm

Final Exam Friday, July 29, 2pm-4pm

**Calculator/Notes Policy:** Scientific/graphing **calculators** are **not allowed** on any exams (including the final exam). I will demonstrate examples without the use of a calculator. If you'd like, you may use a basic, 4 function calculator on exams, but nothing more. There may be a few homework problems that require a scientific calculator, but these won't be used on exams. **Notes**, books, cell phones, web searches, consultations with friends or tutors, etc. are also **not allowed** on exams.

**Missed Exams:** If you miss an exam, contact your instructor immediately. Make-up exams will only be given in cases of a university-excused absence or a verifiable documented emergency or illness. If you miss an exam and do not contact your instructor immediately, you may be dropped from the course.

**Extra Credit is not offered.** Please do not ask for any extra credit. Instead, boost your grade by doing as well as possible on worksheets and assignments. Feel free to come by office hours to work on them with me!

**Attendance:** Attendance is mandatory. If a student has more than three unexcused absences, he/she may be dropped from the course. **In an online course, not submitting an assignment will be regarded as an absence.** Please note that it is the student's responsibility to drop the course if he/she stops attending. A failing grade of F may be assigned if the student stops attending and does not drop before the posted deadline. **Keep me updated of any extenuating circumstances.**

**Student Behavior:** All students have to abide by the Student Code of Conduct: [www.pathfinder.unm.edu](http://www.pathfinder.unm.edu). According to the Code of Conduct, student activities that interfere with the rights of others to pursue their education or to conduct their University duties and responsibilities will lead to disciplinary action. This includes any activities that are disruptive to the class and any acts of academic dishonesty. Students are expected to behave in a courteous and respectful manner toward the instructor and their fellow students. The use of cell phones, headphones, smart watches, etc. is not permitted during class or exams.

**Academic Integrity:** Academic dishonesty of any kind will not be tolerated. Examples include, looking at a neighbor's exam; plagiarizing; using a calculator when not permitted; using a book, online material, and/or notes of any kind; modifying an exam after it is graded; etc. The instructor may warn an offending student, the score of the exam may be reduced, the score may be set to zero, the student may get dropped from the class, the student may get a grade of F for the class, and in most cases the incident will be reported to the Dean of Students. You should be familiar with UNM's Policy on Academic Dishonesty and the Student Code of Conduct.

**Grading:** To get full credit on graded work students must address all mathematical components presented by the problem, showing all steps and calculations. The use of proper notation, well-structured procedures, and legibility will be taken into account when assigning points.

**Deadlines:** Registration deadlines are published by the Office of the Registrar in the schedule of classes: [www.registrar.unm.edu](http://www.registrar.unm.edu).

**Grade mode and Withdrawals:** You must select your grade mode (Letter Grade, CR/NC, or Audit) within the first 2 weeks of the semester. Students who are in the regular grade mode and who withdraw after the end of week 3 will receive a grade of "W". If you do not withdraw (but stop attending), you will receive a letter grade of A, B, C, D, or F. Students who are in the CR/NC grade mode and who withdraw after the end of week 3 will receive a grade of "W". If you do not withdraw (but stop attending), you will receive a letter grade of NC.

**Accessibility Statement and Accommodations:** We will accommodate students with documented disabilities. Those students should inform the instructor of their particular needs ASAP. The American with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodations of their disabilities. If you have a disability requiring accommodation, please contact <http://valencia.unm.edu/students/student-services.html> or by phone 505-925-8560. Information about your disability is confidential and your instructor cannot refer you for accommodations. Be aware that you will need to provide documentation. If you need assistance in obtaining documentation, the office above can assist you.

[Blackboard's Accessibility statement](#)  
[Microsoft's Accessibility statement](#)

**Extra Help and Resources:** In addition to your instructor's office hours, there is extra help available at:

- The Learning Center - <https://valencia.unm.edu/campus-resources/the-learning-center/index.html>
- UNM Valencia Library - <http://valencia.unm.edu/library/>
- 'Life Resources" - <http://valencia.unm.edu/students/student-resources.html>
- Student Health and Counseling (SHAC) - <https://shac.unm.edu/>
- Veteran's Resource Center - [src@unm.edu](mailto:src@unm.edu)

**Title IX Reporting Obligations:** In an effort to meet obligations under Title IX, UNM faculty, Teaching Assistants, and Graduate Assistants are considered "responsible employees" by the Department of Education (see page 15 <https://www2.ed.gov/about/offices/list/ocr/docs/qa-201404-title-ix.pdf>). This designation requires that any report of gender discrimination, which includes sexual harassment, sexual misconduct and sexual violence made to a faculty member, TA, or GA must be reported to the Title IX Coordinator at the Office of Equal Opportunity ([oeo.unm.edu](http://oeo.unm.edu)). For more information on the campus policy regarding sexual misconduct, see: <https://policy.unm.edu/university-policies/2000/2740.html>



**COVID-19 Requirements:** The University of New Mexico requires that all faculty, staff, and students accessing University facilities, housing, programs, services, and activities in person be fully vaccinated for COVID-19, subject to limited exemptions. Proof of vaccination and booster, or a medical, religious, or online remote exemption, must be uploaded to the UNM vaccination verification site. At present, UNM is not requiring masking on UNM campuses for Summer 2022 classes, with the exception of health care facilities with specific COVID-19 regulations.

If you have a positive test for COVID-19 or symptoms of COVID-19, please do not attend class in person. Communicate with me about your absence and possible make-up assignments or work. Please follow the latest guidance from the Center for Disease Control (CDC) and the New Mexico Department of Health (NMDOH) on quarantining or isolating following a positive test for COVID. The current guidance requires a quarantine or isolation period of five days after a positive test or appearance of symptoms.

UNM COVID-19 requirements are subject to change relative to guidance from the New Mexico Department of Health. Thank you for keeping the Lobo community safe!

**Communication on change in modality:** The university may direct that classes move to remote delivery at any time to preserve the health and safety of the students, instructor and community. Please check your email and your UNM Learn site regularly for updates about our class, and please check <https://bringbackthepack.unm.edu> regularly for general UNM updates about COVID-19 and the health of our community.

Acceptable masks and mask wearing in class: A two-layer mask that covers the nose and mouth and that is cleaned regularly is acceptable, as are disposable medical masks, KN95, KF94, FFP1 and FFP2 masks. A face shield is not sufficient protection. It is vital that you wear your mask correctly, covering your nose and mouth. Removing your mask for an extended period to eat or drink in class violates the university mask requirement and endangers others

### **Math 1230 Student Learning Outcomes Students should be able to:**

**Course Goal #1:** Communication

**Addresses UNM Core Area 2/HED Area II: Mathematics (Algebra Competencies)**

**SLO 1:** Use correct mathematical notation and terminology.

**SLO 2:** Read and interpret graphs.

**Course Goal #2:** Trigonometry of Real Numbers

**Addresses UNM Core Area 2/HED Area II: Mathematics (Algebra Competencies)**

**SLO 1:** use the unit circle to define the six trigonometric functions.

**SLO 2:** graph the sine, cosine, and tangent functions.

**SLO 3:** fit a sine or cosine function to a given graph.

**Course Goal #3:** Trigonometry of Angles

**Addresses UNM Core Area 2/HED Area II: Mathematics (Algebra Competencies)**

**SLO 1:** work with radians and to solve circular motion problems.

**SLO 2:** solve right triangles. They will be able to draw a sketch in an applied problem when necessary.

**SLO 3:** solve non-right triangles using the law of sines and the law of cosines.

**Course goal #4:** Analytic Trigonometry

**Addresses UNM Core Area 2/HED Area II: Mathematics (Algebra Competencies)**

**SLO 1:** prove trigonometric identities.

**SLO 2:** apply addition and subtraction, double-angle and half-angle formulas.

**SLO 3:** graph the inverse sine, cosine, and tangent functions.

**SLO 4:** solve problems that require the inverse trigonometric functions.

**SLO 5:** solve trigonometric equations. These may require the formulas outlined in SLO 2.

**SLO 6:** work with the trigonometric form of complex numbers. This includes DeMoivre's formula.

**SLO 7:** work with the Euler form  $r \cdot e^{i\theta}$  of complex numbers.

**SLO 8:** work with vectors in two dimensions.

**Course goal #5:** Analytic Geometry

**Addresses UNM Core Area 2/HED Area II: Mathematics (Algebra Competencies)**

**SLO 1:** work with polar coordinates; this includes graphing in polar coordinates and transforming an equation with polar coordinates into one with rectangular coordinates, and vice versa.

**SLO 2:** graph parametric equations in two dimensions that involve trigonometric functions.

**Note:** The instructor for this class reserves the right to change the syllabus at any point during the semester.

Week of	MATH 1230 Topics	Homework (Do the odd numbered problems).
June 6	5.1 Introduction/Unit Circle	1-19,41-49
	5.2 Trigonometric Functions	7-23,39-45,55-69,73,75
	5.3 Trigonometric Graphs I	3,7,11,15,19-23,31,35,36,37,39,43-49,51-53(graph <u>by hand</u> ), 77
June 13	5.4 Trigonometric Graphs II	3-13,17,19,23,27,29,35,39-43,47-53
	5.5 Inverse Trigonometric Functions	3-11, 17, 23, 25, 31-41
	6.1 Angle Measure	5,7,13-17,21,27,29,45,47,51-57,61-67,71,73,79-85
June 20	6.2 Trig of Acute Angles	3-7,11,15-21,31,35,47-59
	6.3 Trigonometric Functions of Angles	5-15,21,27,29,35-43,47-51,63,65
	6.4 Inverse Trigonometric Functions	1-17,21-27,33,35,39,41
	6.5 Law of Sines	3-9,17-21,33-41
June 27	6.5 Finish	
	6.6 Law of Cosines	7-15,25,39-43,49,51
	7.1 Identities	7,9,13-17,21,29-45,49,53,67,81,83,91-95
July 4	7.2 Addition/Subtraction Formulas	21-33,59,61
	Review <b>Midterm Exam Friday, July 8, 2pm-4pm</b>	
July 11	7.3 Double/Half Angle Formulas	5-13,25,29,37,41,55,57,73,74,75
	7.4 Trigonometric Equations	5-9, 13, 17, 19, 25, 31, 37, 41-53
	7.5 Trigonometric Equations	3, 9, 11, 17-25, 35b, 37b, 38b
July 18	8.1 Polar Coord	5-13,23-31,37-61
	1.6 Complex Numbers	21, 29-35, 39-69
	8.3 Polar Form	5-17,21-47,53-57,61-65
July 25	9.1 Vectors	5-21,33-47,53-59,67
	Review <b>Final Exam Friday, July 29, 2pm-4pm</b>	