

**Math 1230 TRIGONOMETRY Fall 2021**

Instructor: Precious Andrew

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Office: Online via Zoom or email

Office Hours/Study Sessions: Most Mondays and Wednesdays 1:20-2:50, most Tuesdays and Thursdays 1:00-2:30 or by appointment.

Course Description

A study of trigonometry including the definitions of the fundamental trig functions using right angle triangle and unit circle approaches. Covers evaluating and graphing trig functions. Trigonometric identities will be developed and demonstrated including double angle identities. Inverse trigonometric functions will be studied. Trigonometric applications will be solved using right angle trigonometry and the laws of sines and cosines. Trigonometric methods will be applied to complex numbers and the use of 2D vectors and vector dot products

Textbook: Ebook in Learn - Pre-calculus Mathematics for Calculus, 7th 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	150 points
Midterm Exam	100 points
Final Exam	150 points
Total	400 points

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 attending live online lectures for each section via Zoom. Lectures will take place during the scheduled meeting time. These sessions must be attended in their entirety just as if you were in a classroom lecture. You must 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 per week – see the assignments posted in Learn for due dates by clicking the “Submit Assignments” link on the left sidebar. These 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 UNM Learn. Worksheets must be submitted as one readable pdf file. You will print each worksheet, complete it, then use a scanner or free 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’ll need to access to either a printer or a tablet to complete the worksheets. Note that all worksheets are posted under the “Blank Worksheets” link in Learn. This means if you’ll have difficulty accessing a printer, you could have them printed up all at one time at the library if necessary. **The worksheets are designed to follow along with the lectures closely.**

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 textbook. These are mostly odd problems, so you have the answers. Thus, it wouldn't make sense for me to grade them. These are for you to practice. **If you don't do these, you are very unlikely to succeed in the class.**

4 - You will complete a written midterm and a written cumulative final. The exams will appear in UNM Learn at the designated times. You will print the exam and complete it, then upload your completed exam in Learn 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 calculator, phone, the internet, etc.** 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 your pencil and basic calculator on the exams and final 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/times for exams: (Please keep these days and times available)

Midterm Exam Monday, October 18, 3pm-4:15pm
Final Exam Wednesday, December 15 3pm-5pm

Calculator/Notes Policy: Scientific **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.

Homework: Your homework is one of your most important efforts in this class. Homework is how you actually practice the material, worksheets and exams are how you demonstrate that understanding to me. Expect to do 2-3 hours of homework for every hour of class meeting time (on average 10-15 hours per week). You are expected to do all of the homework problems listed in the syllabus whether they are graded or not. **Extra Credit is not offered.** Please do not ask for any extra credit.

Attendance: Attendance is mandatory. If a student has more than three unexcused absences, he/she may be dropped from the course. **In a remote class, not turning in an assignment, not watching required lectures, or missing an exam may 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. No early final exams will be permitted except in documented emergencies: flight reservations, weddings, vacations, birthdays, non-NCAA sporting events, etc. are not considered emergencies.

Student Behavior: All students have to abide by the Student Code of Conduct: 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: The Department of Mathematics and Statistics will adhere to all of the registration deadlines published by the Office of the Registrar in the schedule of classes: www.registrar.unm.edu. We will not give permission to override any deadline except in documented emergencies; failing a class is not considered an emergency.

Grade mode and Withdrawals: You must select your grade mode (Letter Grade, CR/NC, or Audit) within the first 2 weeks of the semester. We will not give permission to change the grade mode after the deadline. 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 (not a W). 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 (not a W). See the list of all deadlines: www.registrar.unm.edu

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 - vrc@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/ga-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). For more information on the campus policy regarding sexual misconduct, see: <https://policy.unm.edu/university-policies/2000/2740.html>

UNM Administrative Mandate on Required Vaccinations: All students, staff, and instructors are required by UNM Administrative Mandate on Required Vaccinations to be fully vaccinated for COVID-19 as soon as possible, but no later than September 30, 2021, and must provide proof of vaccination or of a UNM validated limited exemption or exemption no later than September 30, 2021 to the UNM vaccination verification site. Students seeking medical exemption from the vaccination policy must submit a request to the UNM verification site for review by the UNM Accessibility Resource Center. Students seeking religious exemption from the vaccination policy must submit a request for reasonable accommodation to the UNM verification site for review by the Compliance, Ethics, and Equal Opportunity Office. For further information on the requirement and on limited exemptions and exemptions, see the UNM Administrative Mandate on Required Vaccinations.

UNM Requirement on Masking in Indoor Spaces: All students, staff, and instructors are required to wear face masks in indoor classes, labs, studios and meetings on UNM campuses, see masking requirement. Vaccinated and unvaccinated instructors teaching in classrooms must wear a mask when entering and leaving the classroom and when moving around the room. When vaccinated instructors are able to maintain at least six feet of distance, they may choose to remove their mask for the purpose of increased communication during instruction. Instructors who are not vaccinated (because of an approved medical or religious exemption), or who are not vaccinated yet, must wear their masks at all times. Students who do not wear a mask indoors on UNM campuses can expect to be asked to leave the classroom and to be dropped from a class if failure to wear a mask occurs more than once in that class. With the exception of the limited cases described above, students and employees who do not wear a mask in classrooms and other indoor public spaces on UNM campuses are subject to disciplinary actions.

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

Consequences of not wearing a mask properly: If you don't wear a mask, or if you do not wear a mask properly by covering your nose and mouth, you will be asked to leave class. If you fail to wear a mask properly on more than one occasion, you can expect to be dropped from the class. If you insist on remaining in the classroom while not wearing a mask, class will be dismissed for the day to protect others and you will be dropped from the class immediately.

The instructor will try to have a few disposable masks available in the classroom on a first-come, first-served basis.

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: S 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: add and subtract vectors in two dimensions. They will be able to use the dot product to project one vector onto another and to determine the angle between two vectors. They will be able to solve a variety of word problems using vectors

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).
Aug 23	5.1 Introduction/Unit Circle 5.2 Trigonometric Functions	1-19,41-49 7-23,39-45,55-69,73,75
Aug 30	5.2 Finish 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
Sep 6	Sept. 6th Labor Day, NO CLASS 5.4 Trigonometric Graphs II	3-13,17,19,23,27,29,35,39-43,47-53
Sep 13	5.4 Finish 5.5 Inverse Trigonometric Functions	3-11, 17, 23, 25, 31-41
Sep 20	6.1 Angle Measure 6.2 Trig of Acute Angles 6.3 Trigonometric Functions of Angles	5,7,13-17,21,27,29,45,47,51-57,61-67,71,73,79-85 3-7,11,15-21,31,35,47-59 5-15,21,27,29,35-43,47-51,63,65
Sep 27	6.4 Inverse Trigonometric Functions 6.5 Law of Sines	1-17,21-27,33,35,39,41 3-9,17-21,33-41
Oct 4	6.5 Finish 6.6 Law of Cosines	7-15,25,39-43,49,51
Oct 11	7.1 Identities Review	7,9,13-17,21,29-45,49,53,67,81,83,91-95
	Oct 14th-15th Fall Break, NO CLASS	
Oct 18	Midterm Exam Monday, October 18, 3pm-4:15pm 7.2 Addition/Subtraction Formulas	21-33,59,61
Oct 25	7.2 Finish 7.3 Double/Half Angle Formulas	5-13,25,29,37,41,55,57,73,74,75
Nov 1	7.3 Finish 7.4 Trigonometric Equations 7.5 Trigonometric Equations	5-9, 13, 17, 19, 25, 31, 37, 41-53 3, 9, 11, 17-25, 35b, 37b, 38b
Nov 8	7.5 Finish 8.1 Polar Coord	5-13,23-31,37-61
Nov 15	1.6 Complex Numbers 8.3 Polar Form	19,21,27,29,33-53,57,59,61,67,70,71 5-17,21-47,53-57,61-65
Nov 22	8.3 Finish 8.4 Parametric Equations	1-11 <u>all</u> , 31-34 <u>all</u>
	Nov. 25-26 Thanksgiving, NO CLASS	
Nov 29	9.1 Vectors 9.2 Dot Product	5-21,33-47,53-59,67 5-35, 45-49
Dec 6	9.2 Finish Review	
Dec 13	FINAL EXAM Wednesday, December 15 3pm-5pm	