

Trigonometry

Math 123

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Office Hours
MW 10:30-12 and TR 10-12
Or by appointment

1 Overview

Welcome to Math 123. Here is the UNM course description.

Definition of the trigonometric functions, radian and degree measure, graphs, basic trigonometric identities, inverse trigonometric functions, complex numbers, polar coordinates and graphs, vectors in 2 dimensions. May be taken concurrently with MATH 150. (I)

Prerequisite: 121 or ACT Math \Rightarrow 25 or SAT Math Section \Rightarrow 590 or ACCUPLACER College-Level Math \Rightarrow 69-99.

In this course, we are going to study the trigonometric functions. Trigonometric functions are functions related to angles. They show in many areas including engineering, physics and, of course, mathematics.

2 Course Learning Outcomes

- 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: Students will be able to use the unit circle to define the six trigonometric functions.
 - SLO 2: Students will be able to graph the sine, cosine, and tangent functions.
 - SLO 3: Students will be able to 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: Students will be able to work with radians and to solve circular motion problems.
- SLO 2: Students will be able to solve right triangles. They will be able to draw a sketch in an applied problem when necessary.
- SLO 3: Students will be able to 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: Students will be able to prove trigonometric identities.
 - SLO 2: Students will be able to apply addition and subtraction, double-angle and half-angle formulas.
 - SLO 3: Students will be able to graph the inverse sine, cosine, and tangent functions.
 - SLO 4: Students will be able to solve problems that require the inverse trigonometric functions.
 - SLO 5: Students will be able to solve trigonometric equations. These may require the formulas outlined in SLO 2.
 - SLO 6: Students will be able to work with the trigonometric form of complex numbers. This includes DeMoivre's formula.
 - SLO 7: Students will be able to work with the Euler form of complex numbers.
 - SLO 8: Students will be able to 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: Students will be able to 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: Students will be able to graph parametric equations in two dimensions that involve trigonometric functions.

3 Required Text

The required text for this course is:

- Precalculus 10th Edition by Ron Larson.

4 Attendance Policy

Attendance in the course is required. If a student misses two classes in the first two weeks of the semester, three consecutive class periods or five total, I reserve the right (but not the obligation) to drop the student from the class. If you stop attending class for any reason, it is your responsibility to make sure you dropped the class, or risk getting a failing grade.

5 Course Structure

Every class, I will assign a reading assignment and one or two warm up exercises to try on your own. On every reading assignment, I ask that you write down two or three questions that you have about the reading. I'm only going to check the exercises to see if you attempted them, not for correctness.

After class, I will assign a set of exercises for homework. I will check these for correctness.

There will be a midterm and final. The midterm will count for 10% of your grade and the final 30%. In addition, you must receive a 70% or higher on the final to get credit for the class.

I will also give 4 extra credit assignments throughout the semester that you can use to improve your homework grades.

6 Grading Policy

Your grades will be calculated as follows.

Requirement	% of Grade
1. Attendance	10%
2. Reading Assignments	20%
3. Homework	30%
4. Midterm	10%
5. Final	30%

You must receive at least 70% on the final exam to get credit for the class.

7 Make-up Policy

I will allow up to four late submissions of homework assignments, but not reading assignments. You can use the extra credit assignments to make up any missed reading assignments.

8 A note on academic integrity

We will follow university policy and on academic integrity.

Having academic integrity is paramount to your success in any class. Plagiarism or cheating is not tolerated. Any instance of this will result in a grade of zero for that assignment. Here is the link to the UNM Academic Dishonesty Policy: <https://policy.unm.edu/regents-policies/section-4/4-8.html>. The policy states:

Each student is expected to maintain the highest standards of honesty and integrity in academic and professional matters. The University reserves the right to take disciplinary action, up to and including dismissal, against any student who is found guilty of academic dishonesty or who otherwise fails to meet the expected standards. Any student judged to have engaged in academic dishonesty in course work may receive a reduced or failing grade for the work in question and/or for the course.

Academic Dishonesty is defined as: "Academic dishonesty" includes, but is not limited to, dishonesty in quizzes, tests, or assignments; claiming credit for work not done or done by others; hindering the academic work of other students; misrepresenting academic or professional qualifications within or without the University; and nondisclosure or misrepresentation in filling out applications or other University records.

9 Students with Disabilities

If you have a documented disability, please provide me with a copy of your letter from Equal Access Services as soon as possible to ensure that accommodations are provided in a timely manner.

10 EQUAL OPPORTUNITY AND NON-DISCRIMINATION:

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

Note: This syllabus is subject to change, if needed.