Syllabus - **Trigonometry** - Math 123
University of New Mexico, Los Alamos - Beard
August 21, 2018

Book: "A Graphical Approach to Precalculus with Limits, A Unit Circle Approach", Hornsby, Lial and Rockswold , 7th Ed.
Credit Hours: 3
Class meetings: Tuesdays and Thursdays: 8:30-9:45 a.m., Room 608
Office Hours: Mondays 5:15-6:15 in the ASC, except holidays. Other hours by appointment.
Instructor: Mary Anne Beard
      662-5551 (work)
      672-3436 (home)
      490-1108 (cell)
      e-mail: mabeard@unm.edu or maryannebeard@gmail.com
You can leave a message for me at any number if I am not available.

Online Homework Program: MyMathLab course: Register at http://pearsonmylabandmastering.com

ID: **beard00707**

Please register as soon as possible to uncover any registration problems.

Catalog 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. Prerequisite: Fulfillment of department placement requirements or grade of C (not C–) or better in Math 121.

Course Objectives:
1. To present the principles of trigonometry in a manner that is useful, interesting, understandable, and meaningful to a student.

2. To help students see that mathematics is a tool and a language that can be used to describe parts of the world and universe in which we live, and to learn some of the ways that trigonometric ideas are applied in the present world.

3. To give students much practice solving trigonometric problems in a logical and orderly manner, using diagrams and tables as an aid in organizing known information and applying correct functional operations.

4. To help students become more skilled at reading technical material.

5. To provide some instruction in the use of graphing utilities as an aid in solving problems and graphing trigonometric relationships.

Learning Outcomes:
At the conclusion of this course, the student should be able to:

1. Know and be able to use the circular function, right triangle, and any-angle definitions for the six trigonometric functions sine, cosine, tangent, cosecant, secant, and cotangent.

2. Be able to verify trigonometric identities.   (cont'd)

3. Be able to use identities to rewrite expressions in a form suitable for the specific application under consideration.

4. Be able to graph trigonometric functions by point-plotting and analysis methods.

5. Graph trigonometric functions using a graphing utility.

6. Solve equations containing trigonometric functions.

7. Know and be able to use the Law of Sines, the Law of Cosines, and the related formulas for area of triangles.

8. Apply trigonometric notation to describe and understand some real-world situations.

9. Know definition of "vector in the plane" and be able to do the vector operations of addition and scalar multiplication.

10. Be able to use the dot product to find the angle between two vectors in the plane.

11. Write complex numbers in trigonometric (polar) form and use DeMoivre's Theorem.

12. Plot on polar coordinates and be able to convert from rectangular to polar coordinates, and vice versa.

Major Topics to be Studied:

1. Prerequisites for Trigonometry: real number system, solving equations, Cartesian plane, graphs of equations, functions, graphs of functions, combinations of functions and inverse functions.
2. Trigonometry: radian and degree measure; trig functions and the unit circle, trig functions of an acute angle, trig functions of any angle, graphs of sine and cosine, graphs of other trig functions, additional graphing techniques, inverse trig functions, applications of trigonometry.
3. Analytic trigonometry: applications of fundamental identities, verifying trig identities, solving trig equations, sum and difference formulas, multiple-angle formulas and product-sum formulas.
4. Additional applications of Trigonometry: law of sines, law of cosines, vectors, the dot product
5. Complex numbers: complex numbers, complex solutions of equations, trig form of complex numbers, DeMoivre's Theorem and nth roots.
6. Polar coordinates and polar form of some equations.

If you have special needs, please inform me as soon as possible so that those needs may be met in a timely manner:

> In accordance with University Policy 2310 and the American Disabilities Act (ADA), academic accommodations may be made for any student who notifies the instructor of the need for an accommodation. It is imperative that you take the initiative to bring such needs to the instructor's attention, as I am not legally permitted to inquire. Students who may require assistance in emergency evacuations should contact the instructor as to the most appropriate procedures to follow.

Computer Account Policy
Each student is not required to have two computer accounts:
One is a UNM-LA campus account. This account allows a user access to the Los Alamos campus network and is what a student would use when writing a paper or getting Internet access. Requests for one of these accounts can be made at the computer in the lobby of building #3 (Computer Center). This account no longer has e-mail associated with it. That service is provided by main campus through a UNM NetID described in the next paragraph.
The second is a main campus account (NetID). This account is accessed through my.unm.edu and is the account that is needed to register for classes, print transcripts, check financial status, and check degree progress. This account should be used for reading and sending e-mail. The UNM e-mail address looks like: NetID@unm.edu where NetID is your personal login.
Students may access their e-mail by selecting the MyUNM link from the UNM-LA web page, UNM's main webpage or by opening my.unm.edu and logging in with their NetID. Once logged in they can click the e-mail icon or the e-mail tab. Also, students may forward their e-mail from their UNM account to another account of their preference. Information for that procedure can be had by opening fastinfo.unm.edu, clicking on "Find Answers" and entering "forward e-mail" as the search words.

Evaluation Criteria
Your grade will be based on the following:

6% online homework
6% written homework
6% attendance - calculated using daily attendance problems
20% exam 1
20% exam 2
20% exam 3
22% final exam

Please note that homework will be a significant part (15%) of your grade. Written homework assignments for a given week will be due the following Tuesday. **Attendance is mandatory**. If you decide to stop coming, you will need to drop to avoid an "F" recorded.

 Please let your instructor know in advance if you will be missing a class. If you will miss an exam day, contact your instructor immediately. **Make-up tests are not given unless prior arrangements are made and agreed upon.**

Cell phones should be put on vibrate or turned off during class. No cell phones will be allowed outside of zipped backpacks during exams. If you are caught **cheating** on an exam, you will receive a zero for that exam.

Online Homework (best to have done by the Tuesday following the day it is covered)
Problems have been pre-chosen. One does the whole assignment seen on each section. Officially due on the exam date for that material, but available until the end of the course, with a potential penalty.   Register at http://pearsonmylabandmastering.com using access code from your book and

ID: beard00707

Schedule

We will tentatively cover the following sections on the given days. We will vary this as time permits. If we should get ahead or behind, this schedule will be modified.

Aug. 21, 23   pretest, 9.1, 9.2
Aug. 28, 30   9.3, 9.4
Sep. 4, 6   9.5, 9.6
Sep. 11, 13   9.7, 9.8
Sep. 18,20   Review, Chapter 9 Exam
Sep. 25, 27   10.1,10.2
Oct. 2, 4   10.3
Oct. 9, 11   10.4
Oct. 16, 18   10.5, 10.6
Oct. 23, 25   Review, Chapter 10 Exam
Oct. 30, Nov. 1   11.1, 11.2
Nov. 6, 8   11.3, 11.4
Nov. 13, 15   11.5, 11.6
Nov. 20   11.7
Nov. 27, 29   Review, Chapter 11 Exam
Dec. 4, 6   Review for Final
Dec. 11   Cumulative Final

Written Homework (to be handed in the Tuesday after covered in class and assigned)

9.1 (17, 51,77,95,111)
9.2 (13,35,55,63,73)
9.3 (21,29,39,47,69)
9.4 (19,29,43,49,57)
9.5 (17,71,85,111,117)
9.6 (7,11,57,63,71)
9.7 (3,15,19,35,39)
9.8 (7,11,17,19,23)

10.1 (31,37,55,81,95)
10.2 (9,11,45,47,55)
10.3 (11,17,31,47,59)
10.4 (5,23,67,79,97)
10.5 (5,21,30,31,41)
10-.6 (3,11,13,23,43)

11.1 (15,33,41,49,57)
11.2 (9,17,31,43,51)
11.3 (17,25,51,71,77)
11.4 (9,27,35,49,53)
11.5 (3,7,23,39,53)
11.6 (11,25,39,45,59)
11.7 (5,9,17,19,43)