Plane Trigonometry *– MATH 1213-4 · TR 12:00 – 1:15, WCC 207*

NorthWest Arkansas Community College – Spring 2024

Instructor: *Keith Foster · Office: WCC 202 and SC 327 · 479.619.4380 · gkfoster@nwacc.edu · http://gkfoster.com*

Course Objectives:

1. To develop proficiency in trigonometry by:
   a. define, apply, find exact values and graph the six trigonometric functions
   b. apply applications to include linear and angular velocity, arc length, area of sectors and simple harmonic motion
   c. using trigonometric identities to verify identities and to solve trigonometric equations
   d. define, use and apply inverse trigonometric functions and the Law of Sines and the Law of Cosines
   e. convert complex numbers between standard and trigonometric form, between parametric and rectangular equation of curves, and between rectangular and polar coordinates and their graphs.
2. To develop problem solving skills

Course Descriptions: A survey of basic trigonometric concepts. Topics include the definitions of trigonometric functions, graphs of trigonometric functions, inverse trigonometric functions, trigonometric identities and equations, applications of trigonometry, complex numbers, and polar coordinates and equations.

Required Textbook: *Trigonometry, Lial, Hornsby, Schneider, Daniels, Pearson, 12th edition*

Prerequisites: College Algebra (MATH 1203) with a C or better; or an appropriate placement score. A good understanding of the concepts from the prerequisite course is expected.

Grading for Course: The numerical grade comes from the following sources:

- *Unit Exams*: There will be four unit exams each worth 100 points (total: 400 pts)
- *Homework*: Homework Assignments will be scaled to 50 points.
- *Quizzes*: Quizzes will be scaled to 100 points.
- *Final Exam:* The *final exam* is worth 200 points and will be comprehensive.
  - Percentage score will be this numerical grade out of 750 points. -

Participation Policy: Participation is expected, and lack of participation will invariably prove detrimental to your grade and your learning experience. Regardless of the reason for not being able to access *myLab Math*, you will be responsible for any missed assignments, material and announcements. Do NOT wait until the last minute to complete assignments or quizzes. Attendance during class time is required.

Homework/Quiz Policy: You are *expected* to work all homework problems assigned by the due date listed on myMathLab. Since this is a three-credit course, you should expect to spend around *six hours* each week on homework and general overview of topics being covered (spread this time throughout the week). This is considered the norm for a college level course. It is very important to organize yourself so that you will received the most credit for these assignments. I highly recommend that you write out each problem in a homework notebook so you can refer back to them in preparation for exams, since you will be required to show work on exams for full credit on each problem. Quizzes will be posted periodically on myLab Math (MLM) and some may be given on paper, during class time. You will have a few attempts on each quiz given outside class time on MML, before the due date. No partial credit is given on quizzes given on MLM.

Exam Policy: All exams will be taken during regular class time, on paper. Notes will *not* be allowed on exams. Only approved calculators will be allowed. The use of cell phones or computer application during testing time is prohibited. Once the exam has started, no student may leave for *any* reason unless the exam is turned in. Doing so may result in a Zero for the exam.

Makeup Policy: There will be no make ups on exams, quizzes or homework. I will replace your lowest exam score (or missed exam) with your final exam percent score. Some quizzes will be dropped at the end of the semester. Given the amount of time allowed to complete homework assignments, there is no reason to not complete any homework assignments.

Methods of Instruction: Instruction will take place through lectures, readings and assigned problems.

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Course Schedule: Below is a week-by-week breakdown of course coverage. Schedule is subject to change with email notice given, if that were to happen.

Week	Dates	Coverage
1	Jan 16 & 18	*Course Intro* 1.1 – Angles 1.2 – Angle Relationships & Similar Triangles 1.3 – Trigonometric Functions
2	Jan 23 & 25	1.4 – Using the Definitions of the Trig Functions 2.1 – Trigonometric Functions of Acute Angles 2.2 – Trig Functions of Non-Acute Angles
3	Jan 30 & Feb 1	2.3 – Finding Trig Functions Values (Calculator) 2.4 – Solving Right Triangles 2.5 – Further Applications of Right Triangles
4	Feb 6 & 8	*Exam #1 (Chap 1 and 2)* 3.1 – Radian Measure
5	Feb 13 & 15	3.3 – The Unit Circle and Circular Functions 3.4 – Linear and Angular Speed 4.1 – Graphs of the Sine and Cosine Functions
6	Feb 20 & 22	4.2 – Translations of Graphs (Sine and Cosine) 4.3 – Graphs of Tangent and Cotangent
7	Feb 27 & 29	4.4 – Graphs of the Secant and Cosecant 4.5 – Harmonic Motion *Exam #2 (Chap 3 & 4)*
8	Mar 5 & 7	5.1 – Fundamental Identities 5.2 – Verifying Trigonometric Identities 5.3 – Sum & Difference Identities (Cosine)
9	Mar 12 & 14	5.4 – Sum & Difference Identities (Sine & Tangent) 5.5 – Double-Angle Identities 5.6 – Half-Angle Identities
	Mar 17 – 24	*Spring Break*
10	Mar 26 & 28	6.1 – Inverse Circular Functions 6.2 – Trigonometric Equations I 6.3 – Trigonometric Equations II
11	Apr 2 & 4	*Exam #3 (Chap 5 and 6)* 7.1 – Oblique Triangles and the Law of Sines 7.2 – The Ambiguous Case of the Law of Sines
12	Apr 9 & 11	7.3 – The Law of Cosines 7.4 – Vectors, Operations and the Dot Product 7.5 – Applications of Vectors
13	Apr 16 & 18	8.1 – Complex Numbers 8.2 – Trigonometric Form of Complex Numbers 8.5 – Polar Equations and Graphs
14	Apr 23 & 25	8.6 – Parametric Equations, Graphs & Applications *Exam #4 (Chap 7 and Sect 8.1 - 8.6)*
15	Apr 30 & May 2	*Catch up* *Review for Final Exam*
	May 6 – 10 **Finals Week**	**Final Exam will be given on Tuesday, May 7, 12:30 – 2:30**

Last Update: January 13, 2024