Course Syllabus for Plane Trigonometry
University of Arkansas Rich Mountain
Spring 2022

Instructor: Damian Maxwell- BSc, The University of the West Indies, Mona Jamaica. MSC, Indiana State University, USA.
Phone: (479) 394-7622 ext. 1335
Email: dmaxwell@uarichmountain.edu
Office Hours: MW 10:50 – 12:20, 2:00 – 4:30
TR 12:20 – 1:50, 4:00-4:30
F 10:00 – 1:00 by appointment

Time/Location: Plane Trigonometry (MTH 213), TR 8:00 – 9:15, Room S245

Prerequisites: A grade of "C" or better in MTH203 College Algebra

Text: *Trigonometry*, Mark Dugopolski, Addison Wesley, Pearson Education, Copyright 2003, ISBN # 0-201-70338-6.

Comments on Textbook: This textbook is rich in examples that will effectively help you on your homework. Problems are outlined in a step-by-step format which will help you understand major concepts. Key ideas and concepts are highlighted to allow you to focus on the major points of each lesson. Emphasis is placed on using graphical, numerical, and analytic points of view while solving real life applications of concepts.

Course Description: This course is a study of trigonometric functions and their graphs, identities, solving conditional trigonometric equations, applications, complex numbers, polar coordinates, and parametric equations. Heavy emphasis is placed on graphical, numerical, and analytic methods of solving applications.

Program Outcomes: The knowledge and critical thinking skills acquired in the general education component enable students to analyze problems, to arrive at intelligent conclusions, and to make reasoned choices in their professional and personal lives.

- Use computational mathematics, algebraic operations, and their practical applications to solve problems which they encounter at home and the workplace.
- Possess basic technological skills to identify, locate, and process information.

Rationale: An objective of post-secondary education is to provide a core of knowledge that is shared with most educated people. By studying and developing a deeper understanding of mathematical computations, students can better analyze, problem solve, and prepare critical thinking strategies for real world scenarios. Technological skills with the graphing calculator are necessary for future math courses.

Nature of the Course: The class will be taught using a combination of lecture, group interaction, question and answer approach, and independent study. New topics will be demonstrated using a typed note-taking guide, document camera or Smartboard, and TI 84+ graphing calculator. Lectures will be recorded and available online for student review. The notetaking guide and practice exams are available on the portal. Students are strongly encouraged to discuss concepts and examples as opportunities are presented during instructor presentation or during Zoom sessions with the instructor. It is the student's responsibility to inform the instructor when a concept is confusing or otherwise unclear.

Course Objectives and Expected Student Learning Outcomes:

Upon successful completion of MTH 213 College Trigonometry, the student should be able to:

1. Perform and solve basic unit circle and right triangle problems using appropriate vocabulary and technology.

2. Demonstrate an understanding of the applications of trigonometry.

3. Appropriately use technology to supplement and enhance conceptual understanding, visualization, and inquiry.

4. Synthesize information from a variety of sources to solve problems and interpret results.

5. Demonstrate understanding of the graphs of trigonometric functions using graphing calculators and graphing by hand.

6. Manipulate and solve trigonometric equations using identities.

7. Solve conditional trigonometric equations.

8. Solve polar equations and graph equations using polar coordinates.

<u>Covid-19 Protocols</u>

Face Mask Policy: As per the direction of the University of Arkansas Board of Trustees, all students are required to wear a proper face covering that completely covers the nose and mouth while on campus and in class. Masks with holes or masks that do not completely cover nose and mouth are not acceptable. Any student that does not have a proper mask will leave class and be referred to the Vice Chancellor for Student Affairs for possible disciplinary action.

Food and Drink: Food and drinks, including water are not allowed in the classroom at any time.

UA Rich Mountain Credit Hour Calculator: Success in this class demands good attendance, good listening and note-taking skills, practicing by doing assigned homework problems daily, sufficient practice in and out of class to become very proficient with your graphing calculator,

and concentrated study before tests and final exam. For every course credit hour, you should expect to spend at least three clock hours per week of concentrated attention on course-related work, including but not limited to time attending class, as well as out-of-class time spent completing homework, seeking help from instructor or tutors, preparing for upcoming quizzes/tests/exam, reviewing material, problem solving, and organizing your notebook. For a three-hour course, a typical student should expect to spend at least nine hours per week dedicated to this course. This includes the time spent in class. Please see credit hour calculator attached to end of syllabus.

Course Requirements / Evaluation (Grading):

Tests are 30% of your final grade. Four tests are scheduled.
Class Attendance & Participation 10%
Homework Assignments & Quizzes 25%
Research & Presentations 15%
Final Exam 20%

The final exam is comprehensive and will include problems from the chapters we have covered in class.

90 – 100 = A **80 – 89 = B** **70 – 79 = C** **60 – 69 = D** **0 – 59 = F**

Supplies Needed for daily work: TI-83/84 Calculator supplied by UA Rich Mountain as needed, 3-ring notebook, college rule 3-hole paper, graph paper, cardboard folder, mechanical pencils with extra erasers, pens, yellow highlighter, small pack-colored pencils, small ruler or straight edge.

Criteria for Credit: Homework must be neat and complete. ***Answers alone are not acceptable; all workings must be clearly shown***. Use pencils and /or blue or black ink pens and straight edge papers. Leave a blank line between problems. All graphs are to be accurately sketched on graph paper with all parts properly labeled and all work for the problem shown on the same page as the graph. Graphs much be drawn with a pencil unless otherwise instructed.

Attendance / Make-up Policy: No make-up exams will be given. If you miss an exam, the missing grade will be replaced by the final exam score at the end of the course. Deliberately missing an exam is not advised due to the comprehensive nature of the final exam and the possibility of missing a future exam. The student is responsible for instruction missed during class by studying the material in the book, seeking help from the teacher and/or student support services, and by getting class notes from the teacher or another student.

Cell Phones: The use of cell phones in the classroom is prohibited. Turn cell phones off during school hours. All cell phones will be taken up during exams.

Computer and On-Campus Resources: Computer labs with printers are available in several places on campus including the Johnson Learning Commons. UA Rich Mountain offers students assistance with quality tutors available in the Student Support Services (SSS) and Learning Enrichment and Counseling Center (LEAC) in the Johnson Learning Commons. You may access www.tutor.com/uarichmountain nights and weekends when SSS is not available.

Academic Dishonesty: Any suspicion of academic dishonesty will result in no credit for the paper in question.

UA Rich Mountain Mission: UA Rich Mountain provides transformative education to all learners.

ADA Statement: It is the policy of UA Rich Mountain to accommodate students with disabilities, pursuant to federal law, state law, and the college's commitment to equal educational opportunities. Any student with a disability who needs accommodations, (ex: seating placement, examinations, or access to information on the web), should inform the Vice President of Student Affairs at the beginning of the semester. The Vice President of Student Affairs will contact the faculty member as to the accommodations needed for the course. To contact the Vice President of Student Affairs, students seeking accommodation should go to the Tower Room, located in the Maddox Building or call the College at 479-394-7622, ext. 1400.

Arkansas Clean Air Act: In compliance with the Arkansas Clean Air Act, UA Rich Mountain is a smoke and tobacco free facility. Students and guests are to refrain from the use of all tobacco products while on campus.

Student Misconduct: Students committing misconduct are subject to disciplinary sanction(s) and/or restrictions. Misconduct or prohibited behavior includes, but is not limited to endangerment, harassment, disruption, sexual misconduct, illegal drugs and/or alcohol, fire or safety issues, gambling, property violations, computer violations or other violations as listed in the UA Rich Mountain catalog.

Course Outline:

Chapter 1: Angles and the Trigonometric Functions weeks 1-2

1. Angles and Degree Measure
2. Radian Measure, Arc Length, and Area
3. Angular and Linear Velocity
4. The Basic Trigonometric Functions
5. The Fundamental Identity and Reference Angles
6. Right Triangle Trigonometry

Chapter 2: Graphs of the Trigonometric Functions weeks 3-5

1. Graphs of the sine and Cosine Functions

2. The General Sine Wave
3. Graphs of the Tangent and Cotangent Functions
4. Graphs of the Secant and Cosecant Functions
5. Combining Functions

Chapter 3: Trigonometric Identities____ weeks 6-8____

1. Basic Identities
2. Verifying Identities
3. Sum and Difference Identities for Cosine
4. Sum and Difference Identities for Sine and Tangent
5. Double-Angle and Half-Angle Identities
6. Product and Sum Identities

Chapter 4: Solving Conditional Trigonometric Equations weeks 9-10

1. The Inverse Trigonometric Functions
2. Basic Sine, Cosine, and Tangent Equations
3. Multiple Angle Equations
4. Trigonometric Equations of the Quadratic Type

Chapter 5: Applications of Trigonometry weeks 11-12

1. The Law of Sines
2. The Law of Cosines
3. Area of a Triangle
4. Vectors

Chapter 6: Polar Coordinates and Parametric Equations 13-14

1. Complex Numbers
2. Trigonometric Form of Complex Numbers
3. Powers and Roots of Complex Numbers
4. Polar Equations
5. Parametric Equations

Review and Practice Exam week 15-16

Important Dates:

January 10	M	Classes begin.
January 21	F	Last day to drop with a refund
February 14	M	Winter Break (no classes, offices open)
February 28-March 4	M-F	Priority Registration for Summer & Fall
March 7	M	Mid-semester/first 8-week classes final grades due

March 21-25	M-F	Spring holidays begin (no classes, offices open)
April 29	F	Classes end/Last day to drop a class with a W
May 2-5 May 5	M-R R	Final exams Grades due

Course Conduct: The class will be taught using a combination of lecture, group interaction, question and answer approach, and independent study. New topics will be demonstrated using the board, overhead document projector, and TI 84+ Smartview computer program for support of graphing calculator use. Students are strongly encouraged to discuss concepts and examples as opportunities are presented during instructor presentation. It is the student's responsibility to inform the instructor when a concept is confusing or otherwise unclear.

Credit Hour Requirement Calculator

Course Information				
Department, Course Number	Mathematics			MTH203
Course Title	College Trigonometry			
Credit Hours	3			
Mode of Delivery	Traditional			
Weeks in Part of Term	15			
Level of Reading Material	Advanced/Scientific/Technical (2)			2
Reading Level of Students	Average Student (2)			2
Average Pages per Hour	11			

		Enter either week or term, not both		
Contact Hours		**Hours/Week**	**Hours/Term**	**Total Hours**
Lecture/Recitation			45	45
	Pages Asg'd	**Hours/Week**	**Hours/Term**	
Syllabus Items				
Weekly Homework Assignments		4		60
Prepare for Chapter Tests			12	12
Prepare for Final exam			4	4
Study Assigned Examples	87			7.9
Total Hours				128.9
Required Hours				112.5
Difference				Ok + 16.4