Marshall University Syllabus
Department of Mathematics
MTH 122 Section 101 Fall 2022

Course Title:	Plane Trigonometry
Course Number:	MTH 122 -- Section 101 -- CRN 2863 -- Credit: 3 Hours
Textbook:	Dugopoloski, Trigonometry, 5th edition
Sections Covered:	P.1-P.4, 1.1-1.6, 2.1-2.4, 3.1-3.6, 4.1-4.4, 5.1-5.4, 6.1-6.3
Course Description:	A study of the trigonometric functions, graphs of the trigonometric functions, identities, equations, inverse trigonometric functions, vectors, complex numbers, and applications.
Calculator:	TI-83 or higher, graphing calculators may not be allowed for some problems in exams.
Prerequisites:	ACT Math 22 or SAT 520 or a grade of C or better in MTH 127 or MTH 130
Meeting Time:	MWF: 10:00 – 10:50 AM
Classroom:	Smith Hall 518
Instructor:	Dr. Basant Karna
Office:	Smith Hall 715
Office Hours:	MWF 11:00-1:00 PM (Others by appointment)
Phone/Email:	Phone: (304) 696-4332, Email: karna@marshall.edu
Course Objectives:	The objective of this course are: to present a comprehensive development of trigonometry and some of its applications, to prepare students for courses in calculus and analytic geometry, to prepare students for study in areas such as physics, engineering, biology, chemistry, pharmacy, geology, and medicine.

Course student learning outcomes	**How students will practice each outcome in this course**	**How student achievement of each outcome will be assessed**
Students will learn about degree and radian measure of angles, and angular velocity	Homework, Class work, In-class exercises, Test reviews	Quizzes, homework assignments, exams, Final exam
Students will learn how to evaluate and graph the six trig functions	Homework, Class work, In-class exercises, Test reviews	Quizzes, homework assignments, exams, Final exam
Students will learn how to define and use inverse trig functions	Homework, Class work, In-class exercises, Test reviews	Quizzes, homework assignments, exams, Final exam
Students will learn how to prove trig identities and solve trigonometric equations	Homework, Class work, In-class exercises, Test reviews	Quizzes, homework assignments, exams, Final exam
Students will learn applications of trigonometry to the real world	Homework, Class work, In-class exercises, Test reviews	Quizzes, homework assignments, exams, Final exam
Students will learn how to use trig functions to multiply and divide	Homework, Class work, In-class exercises, Test reviews	Quizzes, homework assignments, exams, Final exam
Students will learn how to find polar coordinates and graph polar equations	Homework, Class work, In-class exercises, Test reviews	Quizzes, homework assignments, exams, Final exam

Course Contents:	- Right Triangular Ratios - Trigonometric Functions - Graphs of Trigonometric Functions - Trigonometric Identities - Inverse Trigonometric Functions and Trigonometric Equations - Applications (Law of Sines, Law of Cosines, Vectors) - Polar Coordinates and Complex Numbers
Attendance Policy:	Attendance is required and you must come with your text. Having more than **25%** absences may result in a course grade of **F**! Absences which can be excused include COVID-19 related absences, illness, emergencies, or participation in another university activity. Excused absences must be approved by the office of the dean of students.
Grading Policy:	A. *Exams*: There will be 2 exams given in class during the semester. C. *Homework Problems*: Homework problems are assigned and will be collected. You are responsible for reading the text, working the exercises, coming to office hours for help when you're stuck, and being aware of the dates for the major exams. Classwork Problems are assigned in class. D. *Final Exam*: There will be a two-hour final exam on December 5 (Monday).
Points Distribution:	Attendance/Teaching Eval 40 Pts Homework Assignments 60 Pts 2 Exams 200 Pts Final Exam 100 Pts --- Total Points: 400 Pts
Class Grades:	The semester grade will be based on the percentage of the 400 total possible points, using the following scale. A: 90 -100 %, B: 80 - 89 %, C: 70 - 79 %, D: 60 - 69 %, F: 0 - 59 % Note: The class score will be posted on Blackboard: https://www.marshall.edu/design-center/
Make-ups:	A. *Exams*: Making up a missed exam is possible only for serious and unavoidable circumstances. B. *Final*: If you don't take final exam, you will receive an "F" for the class.
Exam Dates:	Exam 1 – September 23, Exam 2 – October 28 (Fridays) Final Exam: December 5 @ **10:15 AM** (Monday)
Important Dates:	• August 29, Monday – "W" Withdrawal period begins • September 5, Monday – Labor Day – No Class • November 18, Friday – Last day to drop • November 21, Monday – November 25, Friday – Thanksgiving Break • December 2, Friday – Last class day
Disruptive Actions:	If your actions become disruptive or distracting for me or another student, you will be asked to cease your behavior. If you choose to continue, you will be asked to leave. Disruptive behavior may include but are not limited to the following: cell phone use in class, talking during class, and the use of iPods or MP3 players during class. These will count as **unexcused absences**.
Free Tutoring:	In Smith Hall 625 or virtual Visit the site for more details: https://www.marshall.edu/math/tutoring/
Coming Late:	Students should come on time and stay in the class for entire class. If you are late by more than 5 minutes, you will be considered absent.

University Policies	By enrolling in this course, you agree to the University Policies. Please read the full text of each policy (listed below) by going to MU Academic Affairs: University Policies. (URL: http://www.marshall.edu/academic-affairs/policies/) • Academic Dishonesty Policy • Academic Dismissal Policy • Academic Forgiveness Policy • Academic Probation and Suspension Policy • Affirmative Action Policy • Dead Week Policy • D/F Repeat Rule • Excused Absence Policy for Undergraduates • Inclement Weather Policy • Sexual Harassment Policy • Students with Disabilities (Policies and Procedures) • University Computing Services Acceptable Use Policy

COVID-19 Related Information

Marshall's official COVID-19 protocols are online at https://www.marshall.edu/coronavirus (URL: https://www.marshall.edu/coronavirus/). Policies and protocols may change over time as we respond to changing conditions. The website will always contain the most recent information – check it frequently for the most current information.

Key policies and practices at the start of the Fall 2022 semester include the following:

- **Wear a mask inside university buildings, *when required*.** To see the campus current masking status, visit Marshall's COVID-19 Dashboard (www.marshall.edu/coronavirus). Masks are not required in personal residence hall rooms or workspaces.
- **Students will disinfect their personal workspaces and virtual learning hubs** with disinfectant wipes provided nearby.
- **All members of the Marshall University community are expected to observe all COVID-19 protocols at all times. Students who are unable to follow University requirements due to a disability** should seek reasonable accommodations from the Office of Disability Services (ODS; disabilityservices@marshall.edu) during the first week of class.

Course Schedule

Week	Sections	Topics Covered
1	P.1, P.2, P.3	The Cartesian Coordinate System, Functions, Transformations
2	P.4, 1.1, 1.2	Compositions and Inverses, Angles, Radian Measure, Arc Length and Area
3	1.3, 1.4, 1.5	Angular and Linear Velocity, Trig. Functions, Right Triangle Trigonometry
4	1.6, 2.1, 2.2	The Fundamental Identity, The Unit Circle and Graphing, Sine Wave
5	2.2, Test Review	General Sine Wave, **Exam 1 on September 23**
6	2.3, 2.4 3.1	Graphs of the Secant, Cosecant Tangent and Cotangent, Basic Identities,
7	3.2, 3.3	Verifying Identities, Sum and Difference Identities for Cosine
8	3.4, 3.5	Sum and Difference Identities, Double-Angle and Half-Angle Identities
9	3.6, 4.1	Product and Sum Identities, The Inverse Trigonometric Functions
10	4.2, Test Review	Basic Sine, Cosine, and Tangent Equations, **Exam 2 on October 28**
11	4.3, 4.4	Equations with Compositions, Trigonometric Equations of Quadratic Type,
12	5.1, 5.2, 5.3	The Law of Sines, The Law of Cosines, Area of a Triangle
13	5.4, 6.1, 6.2	Vectors, Complex Numbers, Trigonometric Form of Complex No.
15	6.2, 6.3, Review	Trigonometric Form of Complex Number, De Moivre's Theorem
16	Final Exam	**Final Exam on Monday, Dec 5, 10:15-12:15 PM**

Recommended Homework Problems

Section P.1: 1-8, 9, 13, 19, 21, 24, 25, 32, 37, 49, 51, 56, 58, 65, 73
Section P.2: 1-6, 7, 9, 12, 17, 21-28, 29, 47, 55
Section P.3: 12, 15, 19, 27-34, 35, 53
Section P.4: 7, 15, 17, 33, 45, 53, 57
Section 1.1: 3, 9, 11, 19, 25, 29, 33, 35, 39, 43, 47, 51, 55-62, 63, 67, 75, 79, 97
Section 1.2: 5, 7, 13, 17, 21, 25, 29, 35, 39, 43, 45, 55-62, 65, 71, 83, 91
Section 1.3: 7, 13, 17, 21, 25, 33, 40
Section 1.4: 5, 13, 15, 21, 25, 27, 33, 35, 41, 47, 53, 55, 63, 69, 83, 95
Section 1.5: 1-6, 7, 9, 11, 13, 15, 17, 19, 23, 25, 29, 31, 37, 39, 59
Section 1.6: 3, 5, 7, 13, 17, 19, 23-33 (odd), 35, 37, 39, 41, 43-54
---------- **Exam 1 on September 23** ----------
Section 2.1: 11, 13, 17, 24, 27, 29, 31, 35, 39, 41, 43, 47, 51, 55, 59, 65, 69, 71, 81, 87, 91, 93, 99
Section 2.2: 5, 9, 11, 15, 17, 21, 25, 27, 29, 31, 41
Section 2.3: 5, 11, 13, 15, 21, 23, 27, 29, 33, 37
Section 2.4: 7, 11, 13, 19, 23, 27, 29, 35, 37, 40
Section 3.1: 1-8, 9, 11, 13, 15, 17, 19, 25, 27, 29, 31, 36, 39, 53, 55, 59, 63, 71
Section 3.2: 5-14, 15, 17, 19, 27, 31, 41, 43, 45, 47, 49, 51, 57, 65
Section 3.3: 5, 7, 13, 15, 17, 21, 23, 25, 27, 29, 31, 33, 39, 43-50, 59, 61, 63, 67, 69, 71, 75, 77, 81
Section 3.4: 1, 5, 7, 9, 11, 15, 17, 21, 25, 27, 29, 31, 35, 37, 47, 53
Section 3.5: 1, 5, 7, 9, 13, 15, 19, 20, 25, 27, 29, 33, 51, 57
Section 3.6: 1, 5, 11, 15, 31
---------- **Exam 2 on October28** ----------
Section 4.1: 7, 8, 11, 15, 21, 29, 31, 37, 43, 47, 51, 57, 65, 75, 79, 83, 95, 97, 105
Section 4.2: 3, 5, 7, 11, 15, 17, 19, 23, 27, 33, 35, 39, 55, 63, 66, 72
Section 4.3: 1, 3, 5, 11, 19, 25, 27, 39, 41, 43, 67, 69
Section 4.4: 1, 2, 3, 4, 9, 11, 13, 17, 19
Section 5.1: 5, 7, 9, 13, 15, 16, 27, 29
Section 5.2: 5, 7, 9, 11, 14, 15, 17, 19, 21, 23, 37
Section 5.3: 3, 5, 7, 9, 11, 15, 17, 21, 23, 25, 28
Section 5.4: 9, 11, 15-20, 21, 25, 27, 31, 35, 47, 55, 57, 61, 63, 67, 73
Section 6.1: 5, 9, 13, 17, 19, 25, 31, 37, 43, 45, 51, 57, 65
Section 6.2: 9, 11, 15, 21, 25, 29, 37, 43, 55, 59
Section 6.3: 5, 7, 9, 13, 17, 21
---------- **Final Exam on December 5** ----------