Math 1720 Course Syllabus

Course Title:
Trigonometry

Course Description:
Trigonometry. Three credits. This satisfies the General Education Mathematics requirement and meets specific requirements for programs as outlined in the MTSU Undergraduate Catalog.

Course Prerequisites:
A grade of C or better in MATH 1710 (College algebra), or equivalent.

Instructor Information:

Instructor:

Office:

E-mail:

Phone:

Office Hours:

Required Materials:
Textbook: Trigonometry, 12th Edition by Lial, Hornsby and Schneider, Pearson
Calculator: A TI-83 or TI-84 Plus graphing calculator is required for this course.

Course Purpose:
The goal of Math 1720 is to expand students’ understanding of trigonometric concepts beyond the entry-level requirements for college and to extend their knowledge of trigonometry through relevant mathematical modeling with applications, problem solving, critical thinking skills, and the use of appropriate technologies.

General Education Mathematics Goal and Learning Outcomes:

Goal:
The goal of mathematics is to expand students’ understanding of mathematics beyond the entry-level requirements for college and to extend their knowledge of mathematics through relevant mathematical modeling with applications, problem solving, critical thinking skills, and the use of appropriate technologies.
Learning Outcomes:
Upon completion of this course, students will demonstrate the ability to:
• Use mathematics to solve problems and determine if the solutions are reasonable.
• Use mathematics to model real world behaviors and apply mathematical concepts to the solution of real-life problems.
• Make meaningful connections between mathematics and other disciplines.
• Use technology for mathematical reasoning and problem solving.
• Apply mathematical and/or basic statistical reasoning to analyze data and graphs.

Learning Outcomes:
Upon completion of this course with a passing grade, the student will have:
• Use trigonometric concepts to solve relevant problems and determine if the solutions are reasonable.
• Use trigonometry to model real world behaviors and apply trigonometric concepts to the solution of real-life problems.
• Make meaningful connections between trigonometry and other disciplines.
• Use technology for mathematical reasoning and problem solving.
• Apply mathematical and/or basic statistical reasoning to analyze data and graphs.

Course Requirements:
In order to accomplish the learning outcomes of this course, the learner is required to:
• Attend class lectures
• Participate in class activities
• Read and study assignments
• Solve assigned problem sets
• Complete test, quizzes, homework, etc.
• Complete a comprehensive final exam by the scheduled date/time for their respective section as stated in the Academic Calendar on MTSU Pipeline.

Course Objectives:
Upon completion of this course the student will have:
• Enhanced mathematical skills and problem-solving skills.
• Applied mathematical methods to the solution of practical problems.
• Explored the capabilities of the graphing calculator to better understand trigonometric concepts.
• Developed an understanding of trigonometric functions from graphical, numeric, and symbolic viewpoints.
• Developed familiarity with the practical use of trigonometric functions in modeling real-world phenomena.
• Gained facility in the use and verification of trigonometric identities and their applications.

**Course Topics:**

❖ **Algebra Review Topics**
  ➢ Exponents and Scientific Notation
  ➢ Basic techniques for solving equations
  ➢ Solving inequalities
  ➢ Equations and inequalities involving absolute value
  ➢ Graphical representation of equations and inequalities

❖ **Functions and Relations**
  ➢ Definitions of Relation and Function
  ➢ Symbolic, graphic, numeric and verbal representation of functions and relations
  ➢ The use of functions in mathematical modeling
  ➢ Domain and Range of relations and functions
  ➢ Function evaluation: symbolically, graphically and numerically
  ➢ Graphical x- and y-intercepts of functions
  ➢ Odd and even functions and their graphs
  ➢ (One to one-) functions and their inverses

❖ **Basic Trigonometric Concepts**
  ➢ Angles and their measure, arc length and radius
  ➢ Angle versus slope
  ➢ Sine, cosine and tangent as ratios in a right triangle
  ➢ The interpretation of the tangent as a slope in a right triangle
  ➢ Co-secant and secant as the reciprocals of sine and cosine
  ➢ The Pythagorean identities
  ➢ Verification of trigonometric identities
  ➢ Determining distance and elevation from angle measurements
  ➢ Using the Laws of Sines and Cosines to complete non-right triangles
  ➢ Heron’s formula for the area of a triangle

❖ **Analytical Trigonometry**
  ➢ Sine and cosine as the coordinate functions of the unit circle
  ➢ Graphing trigonometric functions by scale adjustment
  ➢ Modeling periodic phenomena using (co-)sine functions
  ➢ The addition and subtraction rules for (co-)sines and tangents
  ➢ The double- and half-angle formulas for sines and cosines
  ➢ Product-to-sum and sum-to-product formulas for sines and cosines
➢ Power reduction formulas
➢ The inverse trigonometric functions: their graphs, domains and ranges
➢ The solution of trigonometric equations

**Course Evaluation and Grading:**
- Alternative assessments, such as, collaborative investigations, projects, presentations, homework, group work, attendance etc. will account for 25% of the final grade. (most of this is the online homework)
- In-class quizzes and tests will account for 55% of the final grade.
- Comprehensive final exam accounts for 20% of the final grade. Note: this semester the final exam will be given online after thanksgiving.

**Grading Scale:**

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Grade</th>
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<tbody>
<tr>
<td>90 – 100</td>
<td>A</td>
</tr>
<tr>
<td>80 – 89</td>
<td>B</td>
</tr>
<tr>
<td>70 – 79</td>
<td>C</td>
</tr>
<tr>
<td>60 – 69</td>
<td>D</td>
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<tr>
<td>Below 60</td>
<td>F</td>
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**If you do not take the final exam, you cannot pass the course.**

**Important Dates:**
- Last Day to drop without a grade:
- Last Day to drop with a W:
- Final exam Time and Date:

**Drop/Withdrawal Policy and Dates:**
Please note the Drop Policy and Withdrawal Procedures as they are stated in the Current Registration Guide. A grade of “I” will be given only in accordance with University Policy. No grade of “W” will be assigned after the official drop date except in situations involving extreme extenuating circumstances beyond the student’s control. In particular, a “W” will not be granted merely because the student is failing. Students should be aware that missing the official drop date and thereby receiving an “F” can have ramifications on financial aid.

**Lottery Scholarship Policy:**
No grade of W will be assigned after the official drop date except in situations involving extreme extenuating circumstances beyond the student’s control. In particular, a W will not be granted merely because the student is failing. Students should be aware that missing the official drop date and thereby receiving an F can have ramifications on financial aid.

**Reasonable Accommodations for Students with Disabilities:**
Reasonable Accommodations for Students with Disabilities: Middle Tennessee State University is committed to campus access in accordance with Title II of the Americans with Disabilities Act and Section 504 of the Vocational Rehabilitation Act of 1973. Any student interested in reasonable accommodations can consult the Disability & Access Center (DAC) website and/or contact the DAC for assistance at 615-898-2783 or dacemail@mtsu.edu.

**Free Tutoring:**
Take advantage of our FREE tutoring service and learn how to study, get help with understanding difficult course material, receive better test grades, or simply improve your grade point average. Tutoring is available in *study skills and learning strategies* that includes sessions on time management, notetaking, when and where to study, and memory principles. Tutoring is also available in over 200 courses including biology, history, computer information systems, physics, math, psychology, chemistry, economics, recording industry, and many more. The central location for tutoring is the Tutoring Spot, located in Walker Library, but is also conducted at various other campus sites. For available tutoring opportunities, visit [http://mtsu.edu/studentsuccess/tutoring.php](http://mtsu.edu/studentsuccess/tutoring.php). For questions, call the Tutoring Spot at 615-904-8014.

**Title IX Statements for Syllabi**

Students who believe they have been harassed, discriminated against or been the victim of sexual assault, dating violence, domestic violence or stalking should contact a Title IX/Deputy Coordinator at 615-898-2185 or 615-898-2750 for assistance or review MTSU’s Title IX website for resources. [http://www.mtsu.edu/titleix/](http://www.mtsu.edu/titleix/)

MTSU faculty are concerned about the well-being and development of our students and are legally obligated to share reports of sexual assault, dating violence, domestic violence and stalking with the University’s Title IX coordinator to help ensure student’s safety and welfare. Please refer to MTSU’s Title IX site for contact information and details. [http://www.mtsu.edu/titleix/](http://www.mtsu.edu/titleix/)

Academic integrity is a hallmark of Middle Tennessee State University. We expect students to complete academic exercises, i.e., assignments turned in for credit, that are original and appropriately credit all sources used. Academic misconduct includes, but is not limited to:

1. **Plagiarism:** The adoption or reproduction of ideas, words, statements, images, or works of another person as one’s own without proper attribution. This includes self-plagiarism, which occurs when an author submits material or research from a previous academic exercise to satisfy the requirements of another exercise and uses it without proper citation of its reuse.
2. **Cheating:** Using or attempting to use unauthorized materials, information, or study aids in any academic exercise. This includes unapproved collaboration, which occurs when a student works with others on an academic exercise without the express permission of the professor. It also includes purchasing assignments or paying another person to complete a course for you.
3. **Fabrication:** Unauthorized falsification or invention of any information or citation in an academic exercise.

Going online and using information without proper citation, copying parts of other students’ work, creating information to establish credibility, or using someone else’s thoughts or ideas without
appropriate acknowledgment is academic misconduct. If you have a question about an assignment, please ask me to clarify. All cases of academic misconduct will be reported to the Director of Student Academic Ethics and may result in failure on the test/assignment or for the course.

When students participate in behavior that is considered to be academic misconduct, the value of their education and that of their classmates is lessened, and their academic careers are jeopardized.

As a college student, you may experience a range of challenges and issues that can interfere with your physical and mental well-being, hinder your academic experience, and negatively impact your daily life. Some of these experiences may include overwhelming depression/sadness, anxiety, high levels of stress, use of alcohol/drugs, difficulty sleeping, difficulty concentrating, and/or loss of motivation. These challenges and issues can lead to thoughts of self-harm and suicide. If you or any of your classmates are experiencing these issues, it is important to reach out and ask for help. Discuss your situation with a friend, a family member, your instructor, or an academic advisor.

Remember: Everyone struggles. It’s okay to talk about it. Ask for help. YOU ARE NOT ALONE!

MTSU Counseling Services:
KUC 326-S
615-898-2670
National Suicide Prevention Lifeline:
27/7, free, and confidential support for those in emotional distress1-800-273-TALK (8255)
Tennessee Statewide Crisis Phone Line:
27/7, free, and confidential support for those in emotional distress who live in Tennessee
1-855-CRISIS-1 (1-855-274-7471)
Crisis Text Line:
Free, confidential, 24/7 support at your fingertips
Text HOME to 741741

Judicial Statement / Academic Misconduct:
The instructor has the primary responsibility for maintenance of academic integrity and controlling classroom behavior, and can order the temporary removal or exclusion from the classroom of any student engaged in disruptive conduct or conduct that violates the general policies of the Institution for each class session during which the conduct occurs. Extended or permanent exclusion from the classroom, beyond the session in which the conduct occurred, or further disciplinary action can be affected only through appropriate procedures of the Institution. If an instructor wishes to remove a student from the classroom for a longer period of time or permanently, he/she must refer the student to the Office of Judicial Affairs and Mediation Services.

Disruptive behavior in the classroom may be defined as, but not limited to, behavior that obstructs or disrupts the learning environment (e.g., offensive language, harassment of students and professors, repeated outbursts from a student which disrupts the flow of instruction or prevents concentration on the subject taught, failure to cooperate in maintaining classroom decorum, etc.), text messaging, and the continued use of any electronic or other noise or light emitting device which disturbs others (e.g., disturbing noises from beepers, cell phones, palm pilots, lap-top computers, games, etc.).

Plagiarism, cheating, and other forms of academic dishonesty are prohibited. Students found responsible of engaging in academic misconduct, either directly or indirectly, through participation or assistance, are immediately responsible to the instructor of the class. In addition to other possible disciplinary sanctions which may be imposed through the process provided in MTSU Policy III:00:08, Academic Misconduct, the
instructor has the authority to assign an appropriate grade for the exercise or examination, or to assign an F in the course, as is proportional to the nature and extent of the academic misconduct. When a student has engaged in academic misconduct, the faculty member shall ensure that the student is made aware of his/her appeal rights.

All matters involving academic misconduct will be processed as set out in MTSU Policy III:00:08 Academic Misconduct. If not resolved prior to a hearing, these matters will be heard by the Academic Misconduct Committee which will convene a hearing to determine whether the conduct constitutes academic misconduct and, if so, whether additional disciplinary sanctions should be imposed. If the Committee determines there was no academic misconduct, it will direct any grade assigned to be changed as it determines is appropriate. Courses may not be dropped pending the final resolution of an allegation of academic misconduct.