MATH 1316    Trigonometry
Department of Mathematics and Statistics
Spring 2018
By
Dr. Celil Ekici

A. COURSE INFORMATION
Course number: MATH 1316.003    CRN#53785
Class meeting time: Monday, Wednesday & Friday 2:00-3:15pm and online components
Class location: IH-157
Course Website TAMU-CC Blackboard https://bb9.tamucc.edu

B. INSTRUCTOR INFORMATION
Instructor: Celil Ekici, Ph.D.
Office location: CI358
Telephone: (361) 825-2819
Email: celil.ekici@tamucc.edu
Office Hours: Tuesday Thursday 10:00AM-12:00 PM and Wednesday 1:00-2:00PM. You can also schedule by appointment or via online WebEx.

C. COURSE DESCRIPTION:
Trigonometric functions, identities, height and distance, equations involving Trigonometric functions, solutions of triangles, area, vectors and their basic applications, Inverse functions.

D. PREREQUISITES AND COREQUISITES
MATH 1314 or placement into MATH 1316. Fall, Spring and Summer.

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES AND RESOURCES
TEXT: Trigonometry 11th Ed. by Lial, Hornsby, and Schneider. A graphing calculator is required.
Students will use softwares GeoGebra and Desmos which are freely available. You will be expected to experiment with trigonometric functions using these applications as well as studying the assigned online activities using these virtual manipulatives for learning trigonometry. You can further explore these freely-accessible resources from by GeoGebra.org and desmos.com.

F. STUDENT LEARNING OUTCOMES AND ASSESSMENT:
Assessment is a process used by instructors to help improve learning. Assessment is essential for effective learning because it provides feedback to both students and instructors. A critical step in this process is making clear the course’s student learning outcomes that describe what students are expected to learn to be successful in the course. The student learning outcomes for this course are listed below. By collecting data and sharing it with students on how well they are accomplishing these learning outcomes students can more efficiently and effectively focus their learning efforts.
This information can also help instructors identify challenging areas for students and adjust their teaching approach to facilitate learning.

Upon successful completion of this course, students will:

1. Compute the values of trigonometric functions for key angles in all quadrants of the unit circle measured in both degrees and radians.
2. Develop fluency using different representations of trigonometric functions
   a. Graph trigonometric functions and their transformations.
   b. Tabular representations of trigonometric functions
3. Prove trigonometric identities.
   a. Develop algebraically and graphically the multiple angle and half angle formulas for parent trigonometric functions
4. Solve trigonometric equations.
5. Triangle Trigonometry
   a. Solve right and oblique triangles
   b. Understand how the concepts of trigonometry is used in real life applications
      i. Use triangle trigonometry in solving triangles in surveying problems
      ii. Use circle trigonometry to fit sine or cosine functions to a given graph and data based.
      iii. Model periodic data from real world using trigonometric functions using tabular and graphical and algebraical representations.
      iv. Do a survey of how the concepts of trigonometry was developed and practiced throughout history
6. Circle Trigonometry: Building on unit circle metaphor, develop a synthesis of the ideas of rotation, dilation and the powers of complex numbers
   a. Understand how the idea of rotation and multiple angle formulas are connected.
   b. Connect the polar and cartesian coordinates with the idea of complex numbers
   c. Understand the connections among the powers of complex numbers, and multiple angle formulas, \(\sin(n\theta)\).
   d. Express of complex numbers with the trigonometric form of complex numbers including DeMoivre’s formula.
   e. Use the Euler form \(re^{i\theta}\) for complex numbers.
7. Trigonometric Functions as objects: Understand the behaviors and applications of the composite trigonometric function
   a. Add trigonometric functions with multiple periods and close periods and understand their impact
   b. Understand auditory representations of sinusoidal functions with different periods

G. INSTRUCTIONAL METHODS AND ACTIVITIES

Methods and activities for instruction include:

- instructional presentation of new material and concepts,
- class discussion, group discussions, and problem solving analysis using critical thinking techniques,
- individual written assignments to enhance understanding of new concepts,
• inquiry based approaches in developing fundamental ideas of trigonometry in the frames of triangles, circles, functions and their transitions.
• discovery method using digital manipulatives by integrating instructional technologies such as Geogebra, Desmos, spreadsheets or graphing calculators to view the effects of shifting and translation concepts on the trigonometric functions,

H. MAJOR COURSE REQUIREMENTS AND GRADING

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>% of FINAL GRADE</th>
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<tbody>
<tr>
<td>Exams</td>
<td>20%</td>
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<tr>
<td>Attendance&amp;Participation</td>
<td>10%</td>
</tr>
<tr>
<td>Homework Assignments</td>
<td>10%</td>
</tr>
<tr>
<td>Projects&amp;Presentations</td>
<td>30%</td>
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<tr>
<td>Final</td>
<td>30%</td>
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Attendance MANDATORY
Grading scale: A: 90 – 100, B: 80 – 89.99, C: 70 – 79.99, D: 60 – 69.99, F: 59.98 -

I. Please note that the term project will expect you to develop instructional materials using instructional technologies with online tools or virtual manipulatives to experiment with any one of the elementary mathematical ideas that you investigate in the chapters 9, 10, 11, and 12. The Final Project and some of the classroom activities requiring a presentation will be graded using the following Grading Rubric:

<table>
<thead>
<tr>
<th>Category</th>
<th>Exemplary</th>
<th>Good</th>
<th>Satisfactory</th>
<th>Unsatisfactory</th>
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<tbody>
<tr>
<td>Subject knowledge</td>
<td>Demonstrates subject knowledge throughout the entire assignment. All information is clear, appropriate, and accurate. The solutions to all problems are correct.</td>
<td>Demonstrates subject knowledge most of the time. Most of the information is clear, appropriate, and accurate. Most of the solutions to problems are correct, some solutions have minor errors.</td>
<td>Demonstrates some subject knowledge. Some information is clear, appropriate, and accurate. Some solutions to problems are correct.</td>
<td>Subject knowledge is not demonstrated. Information is confusing, insufficient, inappropriate, and inaccurate. Most of the problems have incorrect solutions.</td>
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<td>50%</td>
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<td>Organization</td>
<td>The sequence of information/proof is logical and well organized.</td>
<td>The sequence of information/proof is well organized.</td>
<td>Some parts of the sequence of information/proof is organized.</td>
<td>The sequence of information/proof is disorganized.</td>
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<td>30%</td>
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<td>Communication (written paper, and/or ppt and oral presentation)</td>
<td>Excellent written communication of ideas/ excellent integration of spoken and visual presentation.</td>
<td>Good written communication of ideas, most of the time/good integration of spoken and visual presentation, most of the time.</td>
<td>Some parts are well written, and ideas are communicated effectively / some parts of the presentation are coordinated orally and visually.</td>
<td>The written paper is hard to follow, ideas are not communicated effectively / the presentation is hard to follow, the spoken and visual presentation are not integrated.</td>
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I. COURSE CONTENT/SCHEDULE:

Follow the pacing schedule from the blackboard. You will be informed any updates if necessary.
J. COURSE POLICIES

x Attendance/Tardiness
You are expected to be regular and punctual in your class attendance. You are responsible for all notes, assignments and announcements made in class. Please check BlackBoard.

x Late Work and Make-up Exams
Late work and Make-up Exams are allowed with proper documentation submitted to Student Services.

x Extra Credit: None

x Cell Phone Use
There is a zero tolerance policy for texting or any other cell phone use in class. Cell phones may be left on vibrate for emergency notification purposes. If you expect an important phone call, please inform me before class and quietly excuse yourself when you receive it.

x Participation
An important aspect of mathematical learning is, in part, acting as an accountable member of a learning community where you can develop mathematical language and communication with your classmates in a responsible manner. You will be expected to be engaged in the activities during the class time and participate in collaborative work. You are expected to actively participate in class, and develop mathematical arguments and justify them among your peers. Your active participation is critical and makes the learning experience richer. Simply attending class does not constitute participation.

K. COLLEGE AND UNIVERSITY POLICIES

• Academic Integrity (University)
University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, falsification, forgery, complicity or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work.) In this class, academic misconduct or complicity in an act of academic misconduct on an assignment or test will result in a failing grade.

• Classroom/Professional Behavior
Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the student code of conduct, classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VII of the student code of conduct. Students engaging in unacceptable behavior may be
instructed to leave the classroom. This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.

- **Statement of Civility**
  Texas A&M University-Corpus Christi has a diverse student population that represents the population of the state. Our goal is to provide you with a high quality educational experience that is free from repression. You are responsible for following the rules of the University, city, state and federal government. We expect that you will behave in a manner that is dignified, respectful and courteous to all people, regardless of sex, ethnic/racial origin, religious background, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated.

- **Deadline for Dropping a Course with a Grade of W (University)**
  I hope that you never find it necessary to drop this or any other class. However, events can sometimes occur that make dropping a course necessary or wise. Please consult with your academic advisor, the Financial Aid Office, and me, before you decide to drop this course. Should dropping the course be the best course of action, you must initiate the process to drop the course by going to the Student Services Center and filling out a course drop form. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. Please consult the Academic Calendar (http://www.tamucc.edu/academics/calendar/) for the last day to drop a course.

- **Grade Appeals (College of Science and Engineering)**
  As stated in university procedure 13.02.99.C2.01, Student grade appeal procedures, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules website at http://www.tamucc.edu/provost/university_rules/index.html, and the College of Science and Engineering Grade Appeals webpage at http://sci.tamucc.edu/students/GradeAppeal.html. For assistance and/or guidance in the grade appeal process, students may contact the chair or director of the appropriate department or school, the Office of the College of Science and Engineering Dean, or the Office of the Provost.

- **Disability Services**
  The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other thing, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please call (361) 825-5816 or visit Disability Services in Corpus Christi Hall 116.
If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816. [http://disabilityservices.tamucc.edu/](http://disabilityservices.tamucc.edu/)

- **Statement of Academic Continuity**
  In the event of an unforeseen adverse event, such as a major hurricane and classes could not be held on the campus of Texas A&M University-Corpus Christi; this course would continue through the use of Blackboard and/or email. In addition, the syllabus and class activities may be modified to allow continuation of the course. Ideally, University facilities (i.e., emails, web sites, and Blackboard) will be operational within two days of the closing of the physical campus. However, students need to make certain that the course instructor has a primary and a secondary means of contacting each student.

L. **OTHER INFORMATION**

- **Academic Advising**
  The College of Science & Engineering requires that students meet with an Academic Advisor as soon as they are ready to declare a major. The Academic Advisor will set up a degree plan, which must be signed by the student, a faculty mentor, and the department chair. Meetings are by appointment only; advisors do not take walk-ins. Please call or stop by the Advising Center to check availability and schedule and appointment. The College’s Academic Advising Center is located in Center for Instruction 350 or can be reached at (361) 825-3928.

**GENERAL DISCLAIMER**
I reserve the right to modify the information, schedule, assignments, deadlines, and course policies in this syllabus if and when necessary. I will announce such changes in a timely manner during regularly scheduled lecture periods and make the updates available in Blackboard.