Class Syllabus / Policy for Spring 2019  
MTH 133 Section 003: Trigonometry

Name: Dr. Nicholas Long  
Department: Mathematics & Statistics  
Email: longne@sfasu.edu  
Please do NOT message me on d2l.  
Website: http://www.faculty.sfasu.edu/longne/  
Phone: 936-468-1822  
Office: Math 308  
Office Hours: Mondays and Wednesday from 9:30-11:30, or by appointment  
(This means you need to come see me when you have a question).  

Class meeting time and place: Tuesday and Thursday from 11:00-12:15 in Math 210  

Text and Materials:
- Scientific Calculator  

Course Requirements:
- WebWork homework (you should regularly check online for due dates)  
- Turn in Daily Homework and Participate in class as well as present work when necessary  
- 4 In-class Midterms (to be taken in the first 50 minutes of class, these will be announced at least a week in advance)  
- Final Exam (lasting 2 hours), taken on May 14th from 10:30-12:30  

Grading Policy:  
The Final Grade will be determined by the scale: 100%-90% A, 89%-80% B, 79%-70% C, 69%-60% D, and 59% and below is an F. At my discretion, special consideration can be given to students who regularly attend and participate in class.  

<table>
<thead>
<tr>
<th>Daily Work</th>
<th>Daily Homework/ Presentations/ Participation</th>
<th>15%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekly Homework</td>
<td>WebWork Homework</td>
<td>15%</td>
</tr>
<tr>
<td>Tests</td>
<td>4 Midterm Tests</td>
<td>Highest two count 15%, Lowest two count 10%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>Comprehensive Final Exam</td>
<td>20%</td>
</tr>
<tr>
<td>Final Course Grade</td>
<td></td>
<td>100%</td>
</tr>
</tbody>
</table>

This course will be centered on student work and understanding. In order for you to learn and understand the material in this course, we will be using in-class activities and problems (including student and professor presentations) focused on conceptual understanding, an online homework system (WebWork) for immediate feedback in computational problems, and daily homework to ensure you thinking about some of the important points before coming to class. While this may seem like a lot of work, these activities are set up to complement each other and offer you a way to work in manageable chunks to master this material in this course.  

Central to all of this is you, the student. It is impossible for me to help you if I don’t know how you are thinking about a problem through either a discussion or clearly written work. It is important that you do not get behind in your work and that you ask questions when you have them. The work in this class is not about getting an answer but rather making sense of the process and ideas involved in the problems. For this reason, justification in your work and ideas is very important. Why you did or tried...
something is just as important as what you did or what result you got. In fact, clearly articulating your thought process will make you a more efficient thinker.

Many students use Desmos as a graphing tool and we will occasionally use Desmos in class. You can set up an account and download Desmos at https://www.desmos.com/. It will also be important to have a scientific calculator available when you work on your homework and activities.

Course Policies:

- Exam makeups must be approved beforehand with documentation of a valid university sanctioned excuse.
- Make sure you regularly check on d2l and on WebWork for any changes in due dates. I reserve the right to change dates based on our progress in class. Usually, this will mean taking more time, not less.
- Bring your university ID card to all exams.
- Arrive on time (early) and prepared to participate in class.
- DO NOT use your cell phone in class. This especially includes texting. Phones should be set to silent mode and put away during class time. I will confiscate your cell phone for the duration of the class period if I see you use it during class. You may NOT use your cell phone as a clock or calculator on quizzes or exams.

Webwork Assignments can be found at: https://webwork.sfasu.edu/webwork2/MTH133-Spring19/

Occasionally we will have a writing assignment on https://d2l.sfasu.edu.

When I collect the daily homework, they will be graded as either 1 or 0. You should not think of the grade of an individual assignment as representing a percentage of questions that you got the right answer for, but rather as delivering a message about the problem-solving process:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Student work is complete, including justification or explanation of the processes in solving problems. The work may not be completely correct but the work demonstrates a good line of reasoning.</td>
</tr>
<tr>
<td>0</td>
<td>Student work is missing or does not represent an adequate attempt at solving problems.</td>
</tr>
</tbody>
</table>

I expect there to be about 20 to 25 daily homework assignments. Your daily homework average will make up 10% of your final grade and your participation during class and small group discussions will make up the last 5% of the daily work grade.

Acceptable Student Behavior

Classroom behavior should not interfere with the instructor’s ability to conduct the class or the ability of other students to learn from the instructional program (see the Student Conduct Code, policy D-34.1). Unacceptable or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic or other penalties. This prohibition applies to all instructional forums, including electronic, classroom, labs, discussion groups, field trips, etc. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom. Students who do not attend class regularly or who perform poorly on class projects/exams may be referred to the Early Alert Program. This program provides students with recommendations for resources or other assistance that is available to help SFA students succeed.

Academic Integrity (A-9.1)
Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.

Definition of Academic Dishonesty

Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one's paper without giving the author due credit.

Please read the complete policy at http://www.sfasu.edu/policies/academic_integrity.asp

Withheld Grades Semester Grades Policy (A-54)

Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average.

The circumstances precipitating the request must have occurred after the last day in which a student could withdraw from a course. Students requesting a WH must be passing the course with a minimum projected grade of C.

Students with Disabilities

To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices/.
Math 133 (Math 1316) – Plane Trigonometry
Course Syllabus

Course description: Trigonometric functions of angles, radian measure, fundamental identities; addition, product, and half angle formulas, solution of triangles; polar coordinates; inverse trigonometric functions, complex numbers.

Credit hours: 3

The following is an excerpt from SFA Policy 5.4:

The federal definition of a credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally established equivalency that reasonably approximates:

1. Not less than one hour of classroom or direct faculty instruction and a minimum of two hours out-of-class student work each week for approximately fifteen weeks for one semester or trimester hour of credit, or 10 to 12 weeks for one quarter hour of credit, or the equivalent amount of work over a different amount of time, or;

2. At least an equivalent amount of work as outlined in item 1 above for other academic activities as established by the institution including laboratory work, internships, practica, studio work, and other academic work leading to the award of credit hours.

To this end, all students in courses offered by the Department of Mathematics and Statistics that wish to be successful should plan to spend a minimum of two hours outside of class for every credit hour associated with this course. Expected activities to be completed in the time outside of class include reviewing notes from previous class meetings, reading assigned course resources, completing all assigned exercises and projects, and performing periodic assessment preparation.

Course Prerequisites and Corequisites: See general course prerequisites.

Course outline:

- Angles and definitions of trigonometric functions
  - Angles
    - Degree measure of angles
    - Reference angles
    - Radian measure of angles
    - Arc length, angular velocity, linear velocity
  - Trigonometric functions
    - Definition using the unit circle
    - Reciprocal, ratio, and Pythagorean identities
    - Definition using ratios of sides of right triangles
    - Evaluating exact values for special angles

- Graphs of trigonometric functions
  - Basic graphs of the trigonometric functions
  - Modified graphs of the trigonometric functions
    - Amplitude
    - Period
    - Vertical translation
    - Phase shift

- Inverse Trigonometric Functions and Solving Equations
  - Definitions and graphs of inverse trigonometric functions
  - Calculations with inverse trigonometric functions
  - Solving trigonometric equations
    - Using factoring, identities, and quadratic formula
    - Arguments with multiple angles
    - Using inverse functions to approximate solutions

Approximate time spent

- Angles and definitions of trigonometric functions 15%
- Graphs of trigonometric functions 15%
- Inverse Trigonometric Functions and Solving Equations 15%
• **Identities** 20%
  o Logic and techniques for proving identities
  o Calculations with identities
  o Sum and difference identities
  o Even, odd, and cofunction identities
  o Double and half-angle identities
  o Product-to-sum and sum-to-product identities

• **Solving Triangles** 15%
  o Accuracy and significant digits
  o Solving right triangles
  o Law of Cosines
  o Law of Sines
  o Ambiguous case (SSA)
  o Applications
    - Navigation
    - Surveying
    - Angles of depression/elevation
    - Areas of triangles

• **Vectors, Complex Numbers, and Polar Coordinates** 20%
  o Vectors
    - Definitions
    - Algebraic representations and resolving vectors
    - Resultant vector
    - Angle between vectors
    - Dot product and orthogonality
    - Applications
      - Forces
      - Air speed/ground speed
      - Work
  o Complex number system
    - Definitions
    - Arithmetic and simplification of complex numbers
    - Trigonometric form
    - Products and quotients in trigonometric form
    - De Moivre’s Theorem
    - nth root theorem
  o Polar coordinate system
    - Definitions
    - Various representations for points using polar
    - Conversion between polar and rectangular coordinates
    - Graphs of polar equations
    - Conversion between polar and rectangular
    - Special polar graphs

**Academic Integrity**
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The penalty for a student found cheating on any part of an assignment, quiz, or exam in this class will range from a grade of zero on the work to a grade of F in the course, and may result in additional, more severe disciplinary measures. A student who allows another to copy his work and the student copying the work are both guilty of cheating. Do your own work. Do not show your completed work to others. Do not allow others to copy your work.
Definition of Academic Dishonesty (SFA policy 4.1):
Academic dishonesty includes both cheating and plagiarism. Cheating includes, but is not limited to:
- using or attempting to use unauthorized materials on any class assignment or exam;
- falsifying or inventing of any information, including citations, on an assignment;
- helping or attempting to help other student(s) in an act of cheating or plagiarism.
Plagiarism is presenting the words or ideas of another person as if they were one’s own. Examples of plagiarism include, but are not limited to:
- submitting an assignment as one’s own work when it is at least partly the work of another person;
- submitting a work that has been purchased or otherwise obtained from the Internet or another source;
- incorporating the words or ideas of an author into one's paper or presentation without giving the author credit.

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Student Learning Outcomes (SLO): At the end of MTH 133, a student who has studied and learned the material should be able to:
1. State and use the unit circle and ratio definitions of the six trigonometric functions.
2. Recall and use exact values of the trigonometric functions at integer multiples of π/4 and π/6 in various contexts, especially in graphing trigonometric functions.
3. Graph the trigonometric functions, and graph transformations of trigonometric functions by recognizing amplitude, changes in period, vertical translations, and phase shifts.
4. Use appropriate trigonometric identities in solving equations involving trigonometric functions and in calculating trigonometric function values.
5. Use logical reasoning and known trigonometric identities to verify that an equation is a trigonometric identity.
6. Use inverse trigonometric functions in applications and in solving equations.
7. Determine unknown measures of sides and/or angles of triangles for which some specific measures are given.
8. Solve application problems using tools such as vectors, right triangle trigonometry, the Law of Sines, and the Law of Cosines.
9. Perform arithmetical operations with complex numbers and find powers and roots of complex numbers in trigonometric form.
10. Use the polar coordinate system, relate it to the rectangular coordinate system, and graph equations using polar coordinates.

There are no specific program learning outcomes for this major addressed in this course. It is a general education core curriculum course and/or a service course.

Date of document: 01/11/2019