Syllabus: MTH 133 Trigonometry

Department of Mathematics and Statistics
Spring 2016

Instructor: Dr. Roy Joe Harris
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Office Phone: 936.468.1486

Class Times & Place: Online in D2L, d2l.sfasu.edu
Office: Math 346

Online Office Hours: Thursday 12:30-1:30

Required Materials
Book: Trigonometry, by Mark Dugopolski, fourth edition. If you have a second or third edition of this book, let me know – you can probably use the edition you have. You may use a graphing calculator for this class.

Course Description
We will study the six trigonometric functions and how they are related to one another. Our study will include radian measure of angles, the trig functions and their inverse functions, trig identities, graphs of trig functions, solutions of triangles, complex numbers, and a polar coordinate system for the plane.

Course Requirements
There will be three exams and a comprehensive final that will be proctored on your campus by your high school teacher or on the SFA campus if you are not a high school dual credit student. There are lectures online and online quizzes that must be completed. Homework assignments are made after the lectures in the modules and while they are not graded, practicing homework is how we learn mathematics, so the homework should be completed before attempting the online quiz. Optional discussion areas are provided in each module. I encourage you to use these discussion areas to communicate with your instructor and your classmates.

Final Grade Components
<table>
<thead>
<tr>
<th>Percentage</th>
<th>Component</th>
<th>Grading Scale</th>
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</thead>
<tbody>
<tr>
<td>20%</td>
<td>Quizzes</td>
<td>90% - 100%: A</td>
</tr>
<tr>
<td>60%</td>
<td>Tests (3 @ 20% each)</td>
<td>80% - 90%: B</td>
</tr>
<tr>
<td>20%</td>
<td>Comprehensive Final Exam</td>
<td>70% - 80%: C</td>
</tr>
<tr>
<td>100%</td>
<td>Final Course Grade</td>
<td>60% - 70%: D</td>
</tr>
</tbody>
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Tentative Test Dates
- Exam 1: Tues 2/11
- Exam 2: Thurs 3/7
- Exam 3: Tues 4/15
- Final: Week of May 5-9

General Policies and Information
- Please feel free to call, visit with me at my office, or send me questions by email within Blackboard.
- You earn your grade by communicating your understanding of the material through the homework and online quizzes. Clearly communicating mathematics will be essential in this course.
- I will send e-mails to the entire class during the semester. Check your Blackboard e-mail account frequently.
- Please read the department syllabus at http://www.sfasu.edu/math/courses/syllabi/MTH133Syllabus.pdf

Testing, Grading, and Make-up Policies
- If you miss a test, have a valid excuse, and contact me prior to missing the exam, I will replace your missed test grade by your final exam grade. However, your final may only replace one other score.
- Attendance Policy: You are expected to login regularly.
- Since you have a full semester to arrange any travel plans, they are not an excuse for missing the final.
- You may get help on work that is assigned to be done outside of class, unless otherwise instructed, but I expect any work that you do on your online quizzes to reflect your understanding of the material. On online quizzes, I expect you to only use your brains, pencil, paper, and, sometimes, a calculator.

Course outline:

Angles and definitions of trigonometric functions
Approximate time spent
15%
7. To develop the view that mathematics is an evolving discipline, interrelated with human culture, and understand its connections to other disciplines.
6. To recognize the limitations of mathematical and statistical models.
5. To interpret mathematical models such as formulas, graphs, tables and schematics, and draw inferences from them.
4. To use appropriate technology to enhance mathematical thinking and understanding and to solve mathematical problems and justify conclusions.
3. To represent and evaluate basic mathematical information verbally, numerically, graphically, and symbolically.
2. To model and solve mathematical and real-world problems through the effective use of various strategies, tools, and methods such as symbolic algebra, graphs, and models.
1. To recognize the importance of axiomatic logical thinking in mathematics and how it relates to and differs from deductive and inductive reasoning in other disciplines.

Exemplary Educational Objectives (EEO):
1. To apply arithmetic, algebraic, geometric, higher-order thinking, and statistical methods to modeling and solving real-world situations.
2. To represent and evaluate basic mathematical information verbally, numerically, graphically, and symbolically.
3. To expand mathematical reasoning skills and formal logic to develop convincing mathematical arguments.
4. To use appropriate technology to enhance mathematical thinking and understanding and to solve mathematical problems and judge the reasonableness of the results.
5. To interpret mathematical models such as formulas, graphs, tables and schematics, and draw inferences from them.
6. To recognize the limitations of mathematical and statistical models.
7. To develop the view that mathematics is an evolving discipline, interrelated with human culture, and understand its connections to other disciplines.

**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. [EEO: 2, 5]  
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. [EEO: 2, 5]  
3. Graph the trigonometric functions and transformations of trigonometric functions by recognizing amplitude, changes in period, vertical translations, and phase shifts. [EEO: 1, 2, 5, 6]  
4. Use appropriate trigonometric identities in solving equations involving trigonometric functions and in calculating trigonometric function values. [EEO: 2, 3, 4, 5]  
5. Use logical reasoning and known trigonometric identities to verify that an equation is a trigonometric identity. [EEO: 3]  
6. Use inverse trigonometric functions in applications and in solving equations. [EEO: 1, 4, 6, 7]  
7. Determine unknown measures of sides and/or angles of triangles for which some specific measures are given. [EEO: 1, 4, 6, 7]  
8. Solve application problems using tools such as vectors, right triangle trigonometry, the Law of Sines, and the Law of Cosines. [EEO: 1, 4, 6, 7]  
9. Perform arithmetical operations with complex numbers and find powers and roots of complex numbers in trigonometric form. [EEO: 2, 4, 7]  
10. Use the polar coordinate system, relate it to the rectangular coordinate system, and graph equations using polar coordinates. [EEO: 1, 2, 5, 7]

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.

**University Policies**

- **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.
- **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/.
- **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.

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