MTH 133 – Trigonometry – Sections 001 and 700
Class Policy Sheet and Syllabus—Spring 2018

Instructor: Mrs. Julie Lewis
Department: Mathematics and Statistics

Class Times & Place: 9-9:50 MWF, Room 203, Math Building
Email: LEWISJL5@SFASU.EDU
Office Phone: (936) 468-1880
Office: Room 327, Math Building

Office Hours: These hours have been set aside specifically to help students. I am available other times by appointment.

<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
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</thead>
<tbody>
<tr>
<td>8-9, 2:30 – 3:30</td>
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<td>2:30 – 3:30</td>
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Course Description: The course revolves around the study of the six trigonometric functions and their relationships to one another, as well as their applications to other areas of mathematics and problems in the physical world. Our study will include radian measure of angles, the trigonometric functions, inverse trigonometric functions, graphs of trigonometric functions, fundamental trigonometric identities, addition, product, and half angle formulas, trigonometric equations, solution of triangles, vectors in the plane, complex numbers, and a polar coordinate system for the plane.

Text and Materials: The required textbook is *Trigonometry*, by Mark Dugopolski, 4th edition, ISBN 321923480. You may use a non-CAS graphing calculator for this class only on selected portions of material and exams. Calculators such as a TI-89 or above or TI-Inspire CAS are not allowed. Calculators on cell phones are not allowed.

Course Requirements: There are weekly quizzes that constitute 15% of your final grade. Homework assignments consisting of textbook exercises will be given but will typically not be turned in for a grade. The material on the quizzes will come from the homework assignments or textbook reading. There will be three in-class exams constituting a total of 60% of your final grade and a comprehensive final exam constituting 25% of your final grade.

<table>
<thead>
<tr>
<th>Final Grade Components</th>
<th>Grading Scale</th>
<th>Tentative Exam Dates</th>
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<tbody>
<tr>
<td>15% Quizzes</td>
<td>89.5% ≤ Grade ≤ 100%: A</td>
<td>Exam 1: 2/9</td>
</tr>
<tr>
<td>60% Semester Exams (3 @ 20% each)</td>
<td>79.5% ≤ Grade &lt; 89.5%: B</td>
<td>Exam 2: 3/9</td>
</tr>
<tr>
<td>25% Comprehensive Final Exam</td>
<td>69.5% ≤ Grade &lt; 79.5%: C</td>
<td>Exam 3: 4/20</td>
</tr>
<tr>
<td>100% Final Course Grade</td>
<td>59.5% ≤ Grade &lt; 69.5%: D</td>
<td>Final: 5/9 (Date is Set)</td>
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<tr>
<td></td>
<td>0 ≤ Grade &lt; 59.5%: F</td>
<td></td>
</tr>
</tbody>
</table>

Failure to Attend Class Penalty: Each absence over one (except as per policy A-10, Student Handbook) will reduce your final average by one point.

Classroom Policies:

- **Class Attendance and Participation**—Students are expected to attend all class meetings, arriving on-time and participating in class activities. If you are absent, you are responsible for determining what you missed and for being prepared for class when you return. Leaving class early will result in your being counted absent for the class session. Students that sleep in class, fail to participate, send or receive text messages, or conduct other activities not directly related to class will be counted absent and may be dismissed from class.

- **Cell Phone Policy** – Upon entering the classroom, please turn cell phones off and place them face-down on your desk. Think of our classroom as a no cell-phone zone. In the case of an expected emergency phone call, please inform your instructor before class.

- **Personal Computer Policy** – I ask that students not use personal computing devices during class unless proper documentation requesting such permission is provided to the instructor prior to such use.

- **Behavior** – Be respectful; be courteous.

- **Food/Drink** – Water is allowed; other food/drink is not allowed.
Outside of Class:

- **Preparing for Class**—Students should be prepared to invest several hours per day to reading the text, practicing examples, and working homework exercises. *Material to be discussed in class should be read before coming to class.*

- **Print Course Notes**—Notes will be posted on D2L for each section of material. It is the students’ responsibility to print these notes and bring them each class day.

- **Homework**—Exercises from the text are assigned. Completing homework and checking your answers to odd-numbered problems is your source for daily feedback. Completing homework is also how you become responsible for identifying the topics with which you need to spend more time or seek help. Please label homework sections, number each question, and write steps to each homework problem on paper and keep each assignment together in an organized fashion. Be prepared to show me your homework notebook.

- **Preparing for Quizzes**—The material on the weekly quizzes will come from the homework assignments or textbook reading, so be sure to master the homework from sections already covered in lecture and pre-read for the next class day. There are no makeups for missed quizzes. Three low quiz grades will be dropped at the end of the semester.

- **Check Email/D2L**—Check your university email and announcements on D2L regularly, as I may send reminders, assignments, or announcements.

- **Seek Help**—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 quizzes and exams to reflect your understanding of the material. On quizzes and exams, I expect you to only use your brains, pencil, paper, and, sometimes, a calculator.

**Semester Exam Policies:**

- A student ID with photo is required for all exams.
- On exam days, please turn cell phones off and place them face-down on your desk. Place your student ID on your desk and put other belongings in your backpack and place them at the front or back of the room.
- Graphing calculators are only allowed on certain exams and even then, only on certain parts. The instructor will clear the memory of the calculator completely before these exams. Any pre-loaded programs will be lost.
- If a student must miss an exam due to an excused absence, special arrangements should be made in advance.
- If you miss an exam because of illness or an unforeseen event, I will replace your missed exam grade with the grade you make on the final exam. However, your final may only replace one exam score.
- Please note that the dates for the in-class exams are subject to change.
- Please allow one week for your exams to be graded and returned.

**Final Exam:**

- The final is university scheduled and cannot be taken at a different time without permission of the Dean of the College of Sciences and Mathematics.

  **The final exam is on Wednesday, May 9 from 8 a.m. – 10 a.m. in our classroom.**

- There are no makeups for the comprehensive final exam.
- Since you have a full semester to arrange any travel plans, they are not an excuse for missing the final exam.

**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. **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](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/.
- 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.
- Excused Absence: Students may be excused from attendance for reasons such as health, family emergencies, or student participation in approved university-sponsored events. However, students are responsible for notifying their instructors in advance, when possible, for excusable absences. Students missing classes, other than university-sponsored trips, may contact the Office of Student Rights and Responsibilities (OSRR) and request that an absence notification be sent to the instructor(s). The notification is not an excuse, and is not evaluated by OSRR. The notification is only provided as a courtesy to the student and the student's instructor(s). Students remain responsible for providing documentation in a timely manner to the instructor for each absence. The instructor determines whether such documentation is satisfactory.
- Dead Week: It is possible that a major exam may be given during dead week. This serves as written notification before the 12th class day as required by Policy A-15 (Dead Week.)

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.

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]

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.

Course Outline:

<table>
<thead>
<tr>
<th>Topic</th>
<th>Approximate time spent</th>
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<tbody>
<tr>
<td>Angles and definitions of trigonometric functions</td>
<td>15%</td>
</tr>
<tr>
<td>• Angles</td>
<td></td>
</tr>
<tr>
<td>• Trigonometric functions</td>
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</tr>
<tr>
<td>Graphs of trigonometric functions</td>
<td>15%</td>
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<tr>
<td>• Basic graphs of the trigonometric functions</td>
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<tr>
<td>• Modified graphs of the trigonometric functions</td>
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<tr>
<td>Inverse Trigonometric Functions and Solving Equations</td>
<td>15%</td>
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<tr>
<td>• Definitions and graphs of inverse trigonometric functions</td>
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<tr>
<td>• Calculations with inverse trigonometric functions</td>
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<tr>
<td>• Solving trigonometric equations</td>
<td></td>
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<tr>
<td>Identities</td>
<td>20%</td>
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<tr>
<td>• Logic and techniques for proving various types of trig identities</td>
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<tr>
<td>Solving Triangles</td>
<td>15%</td>
</tr>
<tr>
<td>• Solving right triangles using Law of Cosines and Law of Sines</td>
<td></td>
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<tr>
<td>Vectors, Complex Numbers, and Polar Coordinates</td>
<td>20%</td>
</tr>
<tr>
<td>• Vectors</td>
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<tr>
<td>• Complex number system</td>
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<tr>
<td>• Polar coordinate system</td>
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<td>Wk</td>
<td>Dates</td>
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| Wk 1 | 1/15, 1/17, 1/19 | MLK Holiday  
1.1 Angles and Degree Measure  
1.2 Radian Measure, Arc Length and Area | 1.1: 11, 15, 23, 27, 33, 35, 37, 41, 51, 63, 71, 111  
1.2: EOO (Ever other odd) from 5-21 and 37-97, Odds from 105-113 |
| Wk 2 | 1/22, 1/24, 1/26 | 1.3 Angular and Linear Velocity  
1.4 Trig Functions  
1.5 Right Triangle Trigonometry | 1.3: EOO 5-49  
1.4: EOO 5-97, caution about repetition  
1.5: 2-33 odds, 41-57 EOO |
| Wk 3 | 1/29, 1/31, 2/2 | 1.6 Fundamental Identity and Reference Angles  
2.1 Unit Circle and Graphing | 1.6: 1-53 EOO  
2.1: 1-105 EOO |
| Wk 4 | 2/5, 2/7, 2/9 | 2.2 General Sine Wave  
EXAM 1 | 2.2: 5-41 EOO |
| Wk 5 | 2/12, 2/14, 2/16 | 2.3, 2.4 Graphs of Sec, Csc, Tan, Cot  
3.1 Basic Identities | 2.3: 5-61 EOO, 2.4: 9-65 EOO  
3.1: 9-37 EOO, 53-73 EOO |
| Wk 6 | 2/19, 2/21, 2/23 | 3.2 Verifying Identities  
3.3 Sum and Difference for Cos | 3.2: 21, 31, 35, 41-81 EOO  
3.3: 21-81 EOO, 83-89 Odds |
| Wk 7 | 2/26, 2/28, 3/2 | 3.4 Sum and Difference for Sin and Tan  
3.5 Double and Half-Angle Identities  
4.1 Inverse Trig Functions | 3.4: 9-41 EOO, 45-55 odds  
3.5: 9-33 EOO, 37-73 odds  
4.1: 9-113 EOO, 115 |
| Wk 8 | 3/5, 3/7, 3/9 | 4.1, cont’d  
EXAM 2 | 4.1, cont’d |
| **Spring Break - 3/10 through 3/18** | | | |
| Wk 9 | 3/19, 3/21, 3/23 | 4.2 Basic Sin, Cos and Tan Equations  
4.3 Equations Involving Compositions | Wednesday, March 21 is the last day to drop  
4.2: 5-81 EOO  
4.3: 1-77 EOO |
| Wk 10 | 3/26, 3/28, 3/30 | 4.4 Quadratic Trig Equations | 4.4: 9-77 EOO  
Easter Holiday on 3/30 |
| Wk 11 | 4/2, 4/4, 4/6 | 5.1 Law of Sines  
5.2 Law of Cosines | 5.1: 7, 11, 13, 19, 23, 29, 33  
5.2: 5, 7, 9, 15, 17, 19, 21, 29, 32, 39 |
| Wk 12 | 4/9, 4/11, 4/13 | 5.3 Area of a Triangle  
5.4 Vectors  
5.5 Application of Vectors | 5.3: 3, 5, 11, 15, 21, 29  
5.4: 11, 17, 19, 27, 31, 39, 43, 45, 53, 55, 59, 61, 67  
5.5: 3, 7, 9, 13, 15, 19, 21 |
| Wk 13 | 4/16, 4/18, 4/20 | 6.1 Complex Numbers  
EXAM 3 | 6.1: 7, 13, 15, 17, 23, 25, 31, 43, 45, 57, 77, 87 |
| Wk 14 | 4/23, 4/25, 4/27 | 6.2 Trig form of Complex Numbers  
6.3 Powers and Roots of Complex Numbers  
6.4 Polar Equations | 6.2: 9, 13, 15, 23, 39, 45, 49, 55, 59, 75  
6.3: 5, 9, 15, 27, 33, 51  
6.4: 7, 11, 17, 27, 29, 31, 43, 59, 63, 65 |
| Wk 15 | 4/30, 5/2, 5/4 | 6.5 Parametric Equations | 6.5: 9-29 EOO |
| Wk 16 | 5/9 | FINAL EXAM, Wednesday, May 9, 8 a.m. - 10 a.m. | |