Crafton Hills College
Math 103: Plane Trigonometry

Instructor: Brandi Bailes

Course ID: bailes02509

Class Meeting Times/Location: MW 8:00-9:50 AM in SCC 202

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Required Textbook: Precalculus (10th Edition) – Sullivan.
ISBN: 978-0-321-97907-0

Required Materials:
1. Scientific Calculator
2. Computer/Internet Access
3. MyMathLab Access

Prerequisite: MATH 095, MATH 095C, or eligibility for MATH 103 as determined by the Crafton Hills assessment process.

Course Description: Study of the circular functions, DeMoivre's Theorem and applications. Emphasis is placed on mastering trigonometric identities and the solution of trigonometric equations. If purchasing a used book, new software may need to be purchased at an additional expense.

Student Learning Outcomes: Upon successful completion of the course, students will be able to:

1. The student will identify and sketch the graphs of the trigonometric functions.
2. The student will apply appropriate techniques to determine and/or construct the six trigonometric functions of commonly used angles as appropriate to the course outline.
3. The student will apply appropriate techniques for solving trigonometric equations.
4. The student will recognize, define, and use formal mathematic notation as appropriate to the course outline.

Instructor reserves the right to modify this syllabus. Any changes will be announced during a class session, sent via email, and/or posted as an announcement in MyMathLab.

Attendance: It is extremely important that you attend every class session in order to be successful in this math class. Leaving early or arriving late is disrespectful and disruptive. If you miss any lecture, you will be responsible for the material or any announcement(s) presented on that day. If you miss more than two consecutive classes, you may be dropped from the course.

Dropping: Do not assume that you will automatically be dropped. Poor attendance may result in being dropped from the course. Any student that misses an exam may be dropped from the course.

Academic Honesty: Plagiarism is presenting someone else's work as your own. Plagiarism/cheating WILL result in your forfeiting credit for

Classroom Policies:
You are here to learn. Do so by taking an active role in the classroom. But, keep in mind:

1. All electronic devices should be on silent not vibrate and used for legitimate emergencies only.
2. I reserve the right to ask you to leave should your behavior become disrespectful of the open learning environment.
3. Food is distracting and messy; it should not be brought to class. Any drinks you bring must have a secure lid to avoid spills.

the assignment that includes plagiarism and **MAY** result in your receiving an F for the course. This offense is very serious and may result in expulsion.

Extra Credit: There may be random, unannounced opportunities for extra credit. These may include producing your organized homework or notes, producing your syllabus, or special problems or instructions on quizzes and exams. If you are absent, then you miss the opportunity. There are no make-up chances for extra credit.

Calculators: Calculators will be allowed. Please bring them with you.

Outside of Class Coursework: Be ready to spend approximately 8 hours each week working on assignments. If you are having difficulty and require tutoring, you may receive free tutoring on campus.

Students will be evaluated on the following:

Homework Assignments – 15%: Homework is listed in MyMathLab. Although your homework is online, it is imperative that you write out your answers in an organized manner. This will help you study for exams and help myself or a tutor understand your reasoning and work if you come to us for help. You will not receive full credit on any in class assignment that is not well organized.

Quizzes – 20%: If you miss a quiz, you will be given a grade of zero for that quiz. The way in which you work a problem is important. I will drop your lowest quiz score.

Exams – 40% (10% each): Four exams will be given during the semester. You may be required to show your student ID to take the exam. Cheating of any kind during the exam will result in a score of zero. If you miss the first exam, you may be dropped from the course. There are no make-up exams! If you miss an exam, you will be given a grade of zero for that exam. I will not drop any exam scores.

Final Exam – 25%: A comprehensive written final exam will be given which will include material covered throughout the entire semester. Everyone is required to take the final exam. Failure to take the final exam during the scheduled final exam date/time will result in an "F" grade in the course. The final exam is worth 25% of your grade. **The final exam will be Monday, May 23rd 8AM – 9:50AM.**

Make a note:

1) No solution without supporting work will receive full credit (if any).
2) Use of pen on quizzes and exams is prohibited and may result in reduced credit.
3) No late homework is accepted. All your work must be shown. Your lowest two homework sections will be dropped.
4) No make-up quizzes will be given. Your lowest quiz will be dropped.
5) There are no make-up exams. No exams are dropped.
6) If you miss the first exam, you may be dropped.
7) If you miss the final, you fail the course.
8) If you miss two consecutive classes, you may be dropped from the course.
9) **Grading Scale:**

    A **100% - 90%**
    B **89% - 80%**
    C **79% - 70%**
    D **69% - 60%**
    F **Below 59%**

Flow of Instruction

Special Note: Once information is presented, it cannot be presented again. We lack adequate time. It is of the upmost importance that you are prepared, alert, and involved for lectures.

Sections	Approximate Number of Lectures	Basic Learning Outcomes The basic learning outcomes do not list every learning outcome.
6.1	1	1. Convert from decimals and degrees, minutes, seconds. 2. Find the length of an arc of a circle. 3. Convert from radians to degrees and vice versa. 4. Find the area of a sector of a circle. 5. Find the linear speed of an object traveling in circular motion. 6. Apply linear and angular speed. 7. Convert between linear speed and angular speed.

6.2	2	1. Find the exact values of the trigonometric functions using
		    a. A point on the unit circle.
		    b. Quadrantal angles.
		    c. Common unit circle angles.
		    d. A calculator.
		    e. A circle of radius r.

6.3	2	1. Determine the domain and range of the trigonometric functions. 2. Determine the period of the trigonometric functions. 3. Determine the signs of the trigonometric functions in a given quadrant. 4. Find the values of the trigonometric functions using fundamental identities. 5. Find the exact values of the trigonometric functions of an angle given one of the functions and the quadrant of the angle. 6. Use Even-Odd Properties to find the exact values of the trigonometric functions.
Exam 1		
6.4	2	1. Graph functions of the form $y = A\sin(\omega x)$ and $y = A\cos(\omega x)$ using transformations. 2. Determine the amplitude and period of sinusoidal functions. 3. Graph sinusoidal functions using key points. 4. Find an equation for a sinusoidal graph. 5. Build sinusoidal models from data.
6.5	1	1. Graph functions of the form $y = A\tan(\omega x) + B$, $y = A\cot(\omega x) + B$, $y = A\sec(\omega x) + B$, and $y = A\csc(\omega x) + B$.
6.6	2	1. Graph sinusoidal functions of the form $y = A\sin(\omega x - \phi) + B$ 2. Build sinusoidal models from data.
Exam 2		
7.1	1	1. Calculate and interpret confidence intervals for proportions, means, and standard variation/variance. 2. Find Z-values/critical values. 3. Find critical values from the t-distribution and Chi squared distribution. 4. Calculate the margin of error. 5. Interpret the meaning of a confidence level. 6. Calculate the samples size required for confidence intervals.

7.2	1	1. Apply the 8 steps of hypothesis testing for proportions, means, and standard variation. 2. Interoperate the conclusion of a hypothesis test. 3. Find p-values and critical values using Excel. 4. Emphasize the formation of a conclusion based on the original claim and the rejection of the null hypothesis.
7.3	1	1. Find the exact value of expressions involving the inverse sine, cosine, and tangent functions. 2. Define the inverse secant, cosecant, and cotangent functions. 3. Use a calculator to evaluate $\sec^{-1}x$, $\csc^{-1}x$, and $\cot^{-1}x$. 4. Write a trigonometric expression as an algebraic expression.
7.4	1	1. Solve equations involving a single trigonometric function. 2. Solve trigonometric equations using a calculator. 3. Solve trigonometric equations quadratic in form. 4. Solve trigonometric equations using fundamental identities. 5. Solve trigonometric equations using a graphing utility.
7.5	1	1. Use Sum and Difference Formulas to find exact values. 2. Use Sum and Difference Formulas to establish identities. 3. Use Sum and Difference Formulas involving inverse trigonometric functions. 4. Solve trigonometric equations linear in sine and cosine.
7.6-7.7	1	1. Use double-angle formulas to find exact values. 2. Use double-angle formulas to establish identities. 3. Use half-angle formulas to find exact values. 4. Express sums as products. 5. Express products as sums.
Exam 3		
8.1	1	1. Find the value of trigonometric functions of acute angles usihng right triangles. 2. Use the complementary angle theorem. 3. Solve right triangles. 4. Solve applied problems.
8.2	1	1. Solve SAA or ASA triangles. 2. Solve SSA triangles. 3. Solve applied problems.
8.3	1	1. Solve SAS triangles. 2. Solve SSS triangles. 3. Solve applied problems.
8.4/8.5	1	1. Find the area of SAS triangles. 2. Find the area of SSS triangles. 3. Build a model for an object in simple harmonic motion. 4. Analyze simple harmonic motion. 5. Analyze an object in damped motion. 6. Graph the sum of two functions.
Exam 4		
9.1/9.2	2	1. Plot points using polar coordinates. 2. Convert from polar coordinates to rectangular coordinates. 3. Convert from rectangular coordinates to polar coordinates.

		4. Transform equations between polar and rectangular forms. 5. Identify and graph polar equations by converting to rectangular equations. 6. Test polar equations for symmetry. Graph polar equations by plotting points.
9.3	1	1. Plot points in the complex plane. 2. Convert a complex number between rectangular form and polar form. 3. Find products and quotients of complex numbers in polar form. 4. Use De Moivre's Theorem. Find complex roots.
Final Exam		