Houston Community College
Dual Credit
Course Syllabus

Math 1316: Plane Trigonometry

Instructor: Mr. Ondruch
Conference Times: Tue-Wed first 20 min of lunch. After school when
                               available or when I am in my classroom

Contact Information: mondruch@houstonisd.org
Lessons: http://classroom.westsidehsfaculty.org/webs/mondruch/

Textbook:
Dugopolski, Mark, Trigonometry, Addison-Wesley, Second Edition, 2007.

Catalog Description:
MATH 1316 Plane Trigonometry. Topics include solutions of triangles, Euler identity,
graphing of trigonometric functions, identities, trigonometric equations, applications
including DeMoivre's Theorem, and an introduction to vector analysis.

Prerequisities: 3 credit hours (3 Lectures)

Course Intent:
This course is intended for students whose curriculum requires trigonometry as a
prerequisite for higher mathematics courses. It may also be taken as a first course in
trigonometry or as a review course. Students whose curricula are generally non-technical
in nature may take this course as mathematics elective if the necessary algebraic and
geometric prerequisites have been met. The transferability of this course as either
mathematics credit or elective credit is at the discretion of the school to which the student
intends to transfer.

Audience:
This course is for students who need trigonometry in order to prepare for higher level mathematics courses.

Course Objectives:
Upon completion of this course, a student should be able to:

1. Recognize the six basic trigonometric functions and understand the relationship between them.
2. Evaluate the trigonometric functions of special angles.
3. Find reference or related angles and co-terminal angles.
4. Use a calculator or a table (not on all exams) to find trigonometric function values of any angle.
5. Solve right triangle
6. Convert degrees to radians and vice-versa.
7. Solve problems dealing with the application of radian measures.
8. Solve problems relating to linear and angular velocities.
9. Recognize the graphs of the six basic trigonometric functions.
10. Know the amplitude, period, and phase shift for sine and cosine functions.
11. Sketch functions exhibiting the above properties.
12. Recognize the various identities including sum and difference angle formula, double angle formula, half angle formulas, and sum and product formulas.
13. Prove trigonometric identities using the formulas given above.
14. Solve trigonometric equations and inverse trigonometric equations.
15. Solve triangles using the sine and cosine laws.
16. Find areas of triangles.
17. Rewrite a complex number in polar form.
18. Use DeMoivres Theorem to simplify a complex number raised to a whole number exponent.
19. Find the nth root of a complex number.
20. Solve problems dealing with vectors.
21. Recognize polar graphs.

Homework policy:
Problems will be provided but will not be turned in for grade. This is used for students to practice and ask questions over the next class meeting.

Quiz policy:
Most quizzes will be on a weekly basis and will be announced ahead of time. Of course, I do have the right to give pop quizzes on occasion.

Testing policy:
There will be 7-8 exams during the semester. They will be cumulative in nature.

Grading Policy:
Your final course grade is based on the following standard HCCS scale.

A	89.5-100
B	79.5-89.4
C	69.5-79.4
D	59.5-69.4
F	0-59.4

Final exam is worth 25% of your grade. Exams are worth 70% of each six weeks with quizzes worth 20% and homework worth 10%.

The test will replace all quizzes up to that test with a grade up to an 80 if it improves the student's grade.

Students will be able to replace a test grade with the following test up to an 80.

Calculators:
You may use a calculator in class for class work, and for most exams.

Student conduct:
Students should not engage in disruptive activities while in the classroom. Any conduct that is deemed detrimental to the academic atmosphere, such as cell phone use or consistently talking during instructional delivery, will not be tolerated. Any student found guilty of such conduct will be asked to leave the classroom until further notice.

Academic dishonesty
All students are required to exercise academic honesty in completion of all tests and assignments. Penalties for academic dishonesty (cheating on a test, collusion on an assignment, etc.) include, but are not limited to, a reduced grade, a "0" on that test or assignment, a "W" in the course, or an "F" in the course.

Resources and supplemental instruction:
Any student enrolled in Math 1316 at HCC has access to the tutoring labs where additional help is available. The math tutoring labs are staffed with student assistants who can aid students with math problems.

Another helpful resource is the **SCHAUM's Outlines in Trigonometry** that may be purchased in a local bookstore. Please note this is not required text!

Course Schedule:

<u>Chapters and Sections</u>

Chapter 1- Angles and the Trigonometric Functions

1.1 Angles and Degree Measure	1 hour
1.2 Radian Measure, Arc Length, and Area	1 hour
1.3 Angular and Linear Velocity	1 hour
1.4 The Trigonometric Functions	1 hour
1.5 Right Triangle Trigonometry	2 hours
1.6 The Fundamental Identity and Reference Angles	1 hour

Chapter 2- Graphs of the Trigonometric Functions

2.1 The Unit Circle and Graphing	2 hours
2.2 The General Sine Wave	1 hour
2.3 Graphs of the Secant and Cosecant Functions	1 hour
2.4 Graphs of the Tangent and Cotangent Functions	1 hour
2.5 Combining Functions	1 hour

Chapter 3- Trigonometric Identities

3.1 Basic Identities	2 hours
3.2 Verifying Identities	2 hours
3.3 Sum and Differences Identities for Cosine	1 hour
3.4 Sum and Differences Identities for Sine and Tangent	1 hour
3.5 Double-Angle and Half-Angle Identities	1 hour
3.6 Product and Sum Identities	1 hour

Chapter 4- Solving Conditional Trigonometric Equations

4.1 The Inverse Trigonometric Equations	2 hours
4.2 Basic Sine, Cosine, and Tangent Equations	2 hours
4.3 Multiple Angle Equations	1 hour
4.4 Trigonometric Equations of Quadratic Type	1 hour

Chapter 5- Applications of Trigonometry

5.1 The Law of Sines	2 hours
5.2 The Law of Cosines	2 hours
5.3 Area of a Triangle	1 hour
5.4 Vectors	2 hours
5.5 Applications of Vectors	1 hour

Chapter 6- Complex Numbers, Polar Coordinates, and Parametric Equations

6.1 Complex numbers	1 hour
6.2 Trigonometric Form of Complex Numbers	1 hour
6.3 Powers and Roots of Complex Numbers	3 hours
6.4 Polar Equations	2 hours