



Mathematics
Northeast College DE

Math 1316: Plane Trigonometry

CRN 11300– Fall/2016

Distance Education Course

3 hour lecture course / 48 hours per semester/ 16 weeks

Textbook: Trigonometry, 11th edition by Margaret L. Lial, John Hornsby, David I. Schneider, Callie J. Daniel.

ISBN-13: 978-0134217437

This is an online class, thus you are required to use MML. Course ID:

afaneh75765

Instructor: Mr. **Mohammad Afaneh**

Instructor Contact Information: mohammad.afaneh@hccs.edu and /713-718-2163 Office

Office location and hours: Northline Room# 321 by Appointment

Course Description

MATH 1316 Plane Trigonometry. In-depth study and applications of trigonometry including definitions, identities, inverse functions, solutions of equations, graphing, and solving triangles. Additional topics such as vectors, polar coordinates and parametric equations may be included.

Prerequisites

A grade of C or better in MATH 1314 or the equivalent. (Plane geometry is recommended).

Course Goal

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 a 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.

Course Student Learning Outcomes (SLO):

1. Compute the values of trigonometric functions for key angles in all quadrants of the unit circle measured in both degrees and radians.
2. Graph trigonometric functions and their transformations.
3. Prove trigonometric identities.
4. Solve trigonometric equations.
5. Solve right and oblique triangles.
6. Use the concepts of trigonometry to solve applications.

Objectives:

Students will:

- Recognize the graphs of the six basic trigonometric functions.
- Know the amplitude, period, and phase shift for sine and cosine functions.
- Sketch functions exhibiting the above properties.
- Solve problems dealing with vectors.
- Recognize polar graphs.
- Solve right triangles.
- Convert degrees to radians and vice-versa.
- Solve problems dealing with the application of radian measures.

- Solve problems relating to linear and angular velocities.
- Recognize identities including sum and difference angle formula, double angle formula, and half angle formulas.
- Prove trigonometric identities using the formulas given above.
- Solve trigonometric equations and inverse trigonometric equations.
- Solve triangles using the sine and cosine laws.
- Find areas of triangles.
- Recognize the six basic trigonometric functions and understand the relationships between them.
- Evaluate the trigonometric functions of special angles.
- Find reference or related angles and coterminal angles.
- Use a calculator or a table (not on exams) to find trigonometric function values of any angle.
- Rewrite a complex number in polar form.
- Use DeMoivre's Theorem to simplify a complex number raised to a whole number exponent.
- Find the nth root of a complex number.

Core Objectives

Critical Thinking Skills: to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.

Communication Skills: to include effective development, interpretation and expression of ideas through written, oral and visual communication.

Empirical and Quantitative Skills: to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.

CALENDAR

Exams	Date	Location
Exam One	Sept 15 & 16 & 17 Covers CH 1 & 2	Proctored at 3100 Main St.
Exam Two	Oct 13 & 14 & 15 Covers CH 3 & 4	Online MML
Exam Three	Nov 17 & 18 & 19 Covers CH 5 & 6	Online MML
Final Exam	Dec 2nd & 3rd Comprehensive	Proctored at Central Campus SJAC

Instructional Methods

Online Via MyMathLab at www.coursecompass.com , all work is done in MML, we are using Canvas for communication only.

Student Assignments

Homework -----20%

Exam One -----20% Taken at DE Testing Center

Exam Two-----20%

Exam Three-----20%

Final Exam-----20% Taken at DE Testing Center

Total-----100%

Assessments

Final Cumulative Grade Average = $0.20 \cdot \text{HW} + 0.2 \cdot \text{Exam 1} + 0.2 \cdot \text{Exam 2} + 0.2 \cdot \text{Exam 3} + 0.20 \cdot \text{Final Exam}$

HCC Policy Statement - ADA

Services to Students with Disabilities

Any student with a documented disability (e.g. physical, learning, psychiatric, vision, hearing, etc.) who needs to arrange reasonable accommodations must contact the Disability Services Office at his or her respective college at the beginning of each semester. Faculty members are authorized to provide only the accommodations requested by the Disability Support Services Office. Persons needing accommodations due to a documented disability should contact the ADA counselor for their college as soon as possible. For questions, please contact Donna Price at 713.718.5165. To visit the ADA Web site, please visit www.hccs.edu then click Future students, scroll down the page and click on the words Disability Information.

Contact Information:

Cynthia De Los Santos, MA, LMFT, Northeast College
713-718-8322

HCC Policy Statement: Title IX

HCC is committed to provide a learning and working environment that is free from discrimination on the basis of sex which includes all forms of sexual misconduct. Title IX of the Education Amendments of 1972 requires that when a complaint is filed, a prompt and thorough investigation is initiated. Complaints may be filed with the HCC Title IX Coordinator available at 713 718-8271 or email at oe@hccs.edu.

Title IX of the Education Amendments of 1972 requires that institutions have policies and procedures that protect students' rights with regard to sex/gender discrimination.

Information regarding these rights are on the HCC website under Students-Anti-discrimination. Students who are pregnant and require accommodations should contact any of the ADA Counselors for assistance.

It is important that every student understands and conforms to respectful behavior while at HCC. Sexual misconduct is not condoned and will be addressed promptly. Know your rights and how to avoid these difficult situations.

Log in to www.edurisksolutions.org. Sign in using your HCC student email account, then go to the button at the top right that says Login and enter your student number.

HCC Policy Statement: Academic Honesty

A student who is academically dishonest is, by definition, not showing that the coursework has been learned, and that student is claiming an advantage not available to other students. The instructor is responsible for measuring each student's individual achievements and also for ensuring that all students compete on a level playing field. Thus, in our system, the instructor has teaching, grading, and enforcement roles. You are expected to be familiar with the University's Policy on Academic Honesty, found in the catalog. What that means is: If you are charged with an offense, pleading ignorance of the rules will not help you. Students are responsible for conducting themselves with honor and integrity in fulfilling course requirements. Penalties and/or disciplinary proceedings may be initiated by College System officials against a student accused of scholastic dishonesty. "Scholastic dishonesty": includes, but is not limited to, cheating on a test, plagiarism, and collusion.

Cheating on a test includes:

- Copying from another student's test paper;
- Using materials not authorized by the person giving the test;
- Collaborating with another student during a test without authorization;
- Knowingly using, buying, selling, stealing, transporting, or soliciting in whole or part the contents of a test not yet administered;
- Bribing another person to obtain a test that is to be administered.

Plagiarism means the appropriation of another's work and the unacknowledged incorporation of that work in one's own written work offered for credit.

Collusion means the unauthorized collaboration with another person in preparing written work offered for credit. Possible punishments for academic dishonesty may include a grade of 0 or F in the particular assignment, failure in the course, and/or recommendation for probation or dismissal from the College System. (See the Student Handbook)

HCC Policy Statements

Class Attendance - It is important that you come to class! Attending class regularly is the best way to succeed in this class. Research has shown that the single most important factor in student success is attendance. Simply put, going to class greatly increases your ability to succeed. You are expected to be on time at the beginning of each class period. For complete information regarding Houston Community College's policies on attendance, please refer to the Student Handbook. You are responsible for materials covered during your absences. Class attendance is checked daily. Although it is your responsibility to drop a course for nonattendance, the instructor has the authority to drop you for excessive absences. **Students are expected to work weekly on their HW and reading.**

If you are not attending class, you are not learning the information. As the information that is discussed in class is important for your career, **students may be dropped from a course after accumulating absences in excess of six (6) hours of instruction.** The six hours of class time would include any total classes missed or for excessive tardiness or leaving class early.

You may decide NOT to come to class for whatever reason. As an adult making the decision not to attend, you do not have to notify the instructor prior to missing a class. However, if this happens too many times, you may suddenly find that you have "lost" the class.

Poor attendance records tend to correlate with poor grades. If you miss any class, including the first week, you are responsible for all material missed. It is a good idea to find a friend or a buddy in class who would be willing to share class notes or discussion or be able to hand in your work if you unavoidably miss a class

HCC Course Withdrawal Policy

If you feel that you cannot complete this course, you will need to withdraw from the course prior to the final date of withdrawal. Before, you withdraw from your course; please take the time to meet with the instructor to discuss why you feel it is necessary to do so. The instructor may be able to provide you with suggestions that would enable you to complete the course. Your success is very important. Beginning in fall 2007, the Texas Legislature passed a law limiting first time entering freshmen to no more than **SIX** total course withdrawals **throughout** their educational career in obtaining a certificate and/or degree.

To help students avoid having to drop/withdraw from any class, HCC has instituted an Early Alert process by which your professor *may* "alert" you and HCC counselors that you might fail a class because of excessive absences and/or poor academic performance. It is your responsibility to visit with your professor or a counselor to learn about what, if any, HCC interventions might be available to assist you – online tutoring, child care, financial aid, job placement, etc. – to stay in class and improve your academic performance.

If you plan on withdrawing from your class, you **MUST** contact a HCC counselor or your professor prior to withdrawing (dropping) the class for approval and this must be done **PRIOR** to the withdrawal deadline to receive a "W" on your transcript. ****Final withdrawal deadlines vary each semester and/or depending on class length, please visit the online registration calendars, HCC schedule of classes and catalog, any HCC Registration Office, or any HCC counselor to determine class withdrawal deadlines. Remember to allow a 24-hour response time when communicating via email and/or telephone with a professor and/or counselor. Do not submit a request to discuss withdrawal options less than a day before the deadline.** If you do not withdraw before the deadline, you will receive the grade that you are making in the class as your final grade. **The last day to withdraw is Oct 28, 2016 Friday.**

Repeat Course Fee

The State of Texas encourages students to complete college without having to repeat failed classes. To increase student success, students who repeat the same course more than twice, are required to pay extra tuition. The purpose of this extra tuition fee is to encourage students to pass their courses and to graduate. Effective fall 2006, HCC will charge a higher tuition rate to students registering the third or subsequent time for a course. If you are considering course withdrawal because you are not earning passing grades, confer with your instructor/counselor as early as possible about your study habits, reading and writing homework, test taking skills, attendance, course participation, and opportunities for tutoring or other assistance that might be available.

Classroom Behavior

Place your classroom behavior policy here.

Use of Camera and/or Recording Devices

As a student active in the learning community of this course, it is your responsibility to be respectful of the learning atmosphere in your classroom. To show respect of your fellow students and instructor, you will turn off your phone and other electronic devices, and will not use these devices in the classroom unless you receive permission from the instructor.

Use of recording devices, including camera phones and tape recorders, is prohibited in classrooms, laboratories, faculty offices, and other locations where instruction, tutoring, or testing occurs. Students with disabilities who need to use a recording device as a reasonable accommodation should contact the Office for Students with Disabilities for information regarding reasonable accommodations

Instructor Requirements

All Students are required to read the assigned readings and do homework as well as taking exams.

Grading Scale

90 - 100 = A
80 - 89 = B
70 - 79 = C
60 - 69 = D
Below 60 = F

Personal Communication Device Policy:

All personal communication devices (any device with communication capabilities including but not limited to cell phones, blackberries, pagers, cameras, palmtop computers, lap tops, PDA's, radios, headsets, portable fax machines, recorders, organizers, databanks, and electronic dictionaries or translators) must be muted or turned off during class. Such activity during class time is deemed to be disruptive to the academic process. Personal communication devices are to not be on the student desk during examinations. Usage of such devices during exams is expressly prohibited during examinations and will be considered cheating (see academic honesty section above).

Student Course Reinstatement Policy:

Students have a responsibility to arrange payment for their classes when they register, either through cash, credit card, financial aid, or the installment plan. Faculty members have a responsibility to check their class rolls regularly, especially during the early weeks of a term, and reconcile the official class roll to ensure that no one is attending class whose name does not appear on it. Students who are dropped from their courses for nonpayment of tuition and fees who request reinstatement after the official date of record (OE Date) can be reinstated by making payment in full and paying an additional \$75 per course reinstatement fee. A student requesting reinstatement should present the registrar with a completed **Enrollment Authorization Form** with the signature of the instructor, department chair, or dean who should verify that the student has been attending class regularly. Students who are reinstated are responsible for all course policies and procedures, including attendance requirements.

Resources:

Any student enrolled in Math 2412 at HCCS has access to the Academic Support Center where they may get additional help in understanding the theory or improving their skill. The Center is staffed with mathematics faculty and student assistants, and offers

tutorial help. A Chapter Tests preparation video CD comes with the text. A Student’s Solution Manual and MyMathLab are also available

Free tutoring is available in **room 411**. Additional help is also available through Student Support Services. Students can get free assistance, 24 hours a day, 7 days a week, in Math, English and other subjects, at www.hccs.askonline.net. Typically, posted questions are answered by an HCC tutor or faculty within 24 hours (usually under 6 hours). There are also several online math resources that you can find with an internet search. You may also find information on the Learning Web site accessible through your specific HCCS campus website.

EGLS₃ -- Evaluation for Greater Learning Student Survey System

At Houston Community College, professors believe that thoughtful student feedback is necessary to improve teaching and learning. During a designated time, you will be asked to answer a short online survey of research-based questions related to instruction. The anonymous results of the survey will be made available to your professors and division chairs for continual improvement of instruction. Look for the survey as part of the Houston Community College Student System online near the end of the term. Visit www.hccs.edu/EGLS3 for more information.

Administration contact information

College - Level Math Courses

Chair of Math	Jaime Hernandez	SW Campus	713-718-2477	Stafford, Scarcella, N108
- Secretary	Tiffany Pham	SW Campus	713-718-7770	Stafford, Scarcella, N108
Math Assoc. Chair	Clen Vance	CE Campus	713-718-6448	San Jacinto Building, Rm 369
Math Assoc. Chair	Ernest Lowery	NW Campus	713-718-5512	Katy Campus Building, Rm 112
Math Assoc. Chair	Mahmoud Basharat	NE Campus	713-718-2438	Codwell Hall Rm 105

Developmental Math Courses

Chair of Dev. Math	Susan Fife	SE Campus	713-718-7241	Felix Morales Building, Rm 124
- Secretary	Carmen Vasquez	SE Campus	713-718-7056	Felix Morales Building, Rm 124
Dev. Math Assoc. Chair	Marisol Montemayor	SE Campus	713-718-7153	Felix Morales Building, Rm 124
Dev. Math Assoc. Chair	Jack Hatton	NE Campus	713-718-2434	Northline Building, Room 321

For issues related to your class, please first contact your instructor.

If you need to contact departmental administration, then contact the appropriate Associate Chair.

If further administrative contact is necessary, then contact the appropriate Department Chair.

Section Numbers

Approximate Time

Chapter 1 Trigonometric Functions

(3 hours)

- 1.1 Angles
- 1.2 (Optional) Angle Relationships and Similar Triangles
- 1.3 Trigonometric Functions
- 1.4 Using the Definitions of the Trigonometric Functions

Chapter 2 Acute Angles and Right Triangles

(4.5 hours)

- 2.1 Trigonometric Functions of Acute Angles
- 2.2 Trigonometric Functions of Non-Acute Angles
- 2.3 Approximations of Trigonometric Functions Values

- 2.4 Solution and Applications of Right Triangles
- 2.5 Further Applications of Right Triangles

Chapter 3 Radian Measure and the Unit Circle (3 hours)

- 3.1 Radian Measure
- 3.2 Applications of Radian Measure
- 3.3 The Unit Circle and Circular Functions
- 3.4 Linear and Angular Speed

Chapter 4 Graphs of the Circular Functions (4.5 hours)

- 4.1 Graphs of the Sine and Cosine Functions
- 4.2 Translations of the Graphs of the Sine and Cosine Functions
- 4.3 Graphs of the Tangent and Cotangent Functions
- 4.4 Graphs of the Secant and Cosecant Functions
- 4.5 Harmonic Motion (Omit)

Chapter 5 Trigonometric Identities (9 hours)

- 5.1 Fundamental Identities
- 5.2 Verifying Trigonometric Identities
- 5.3 Sum and Difference Identities for Cosine
- 5.4 Sum and Difference Identities for Sine and Tangent
- 5.5 Double-Angle Identities
- 5.6 Half-Angle Identities

Chapter 6 Inverse Circular Functions and Trigonometric Equations (4 hours)

- 6.1 Inverse Circular Functions
- 6.2 Trigonometric Equations I
- 6.3 Trigonometric Equations II
- 6.4 Equations Involving Inverse Trigonometric Functions

Chapter 7 Applications of Trigonometry and Vectors (7.5 hours)

- 7.1 Oblique Triangles and the Law of Sines
- 7.2 The Ambiguous Case of the Law of Sines
- 7.3 The Law of Cosines
- 7.4 Geometrically Defined Vectors and Applications
- 7.5 Algebraically Defined Vectors and Dot Product

Chapter 8 Complex Numbers, Polar Equations, and Parametric Equations (6.5 hours)

- 8.1 Complex Numbers (Optional)
 - 8.2 Trigonometric (Polar) Form of Complex Numbers
 - 8.3 The Product and Quotient Theorems
 - 8.4 DeMoivre's Theorem; Powers and Roots of Complex Numbers
 - 8.5 Polar Equations and Graphs
 - 8.6 Parametric Equations, Graphs, and Applications (Omit)
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