



Mathematics Southeast Campus

Math 1316: Plane Trigonometry

CRN 15104 – Spring/2019

Room 313 AM | 5:30-6:50PM | Mon and Wed

3 hour lecture course / 48 hours per semester/ Jan. 14- May 10

Textbook: Trigonometry, 11th edition by Margaret L. Lial, John Hornsby, David I. Schneider, Callie J. Daniel.
ISBN-13: 978-0134307008

Instructor: Tawfik Haj

Instructor Contact Information: Tawfik.haj@hccs.edu

Office hours: after class

MyMathLab course ID #: haj28671

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
CALENDAR**

HW due date	Chapters Covered on Test	Test Date
HW #1-1/29/19	1.1-1.4, 2.1-2.5, 3.1-3.4	Test #1-1/30/19
HW #2-2/19/19	5.1-5.6	Test #2- 2/20/19
HW #3-3/19/19	4.1-4.5, 6.1-6.4	Test #3-3/20/19
HW #4-4/9/19	7.1-7.5	Test #4-4/10/19
HW #5-4/30/19	8.1-8.6	Test #5-5/1/19
Final Exam	Chapters 1 - 8	<u>5/6/19 5:30-7:30PM</u>

Instructional Methods

It should be noted that enrollment in this course does not guarantee advancement to the next course level. The final responsibility for learning lies with the student. The final class average will be determined by the following guidelines:

Student Assignments

- 5 Major Exams** **50%, NO MAKE-UP EXAMS(will drop lowest grade)**
- HW assignments** **20%, (MyMathLab)**
- Final Exam** **30%.**

HCC Policy Statement - Students with disabilities

HCC strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please meet with a campus Abilities Counselor as soon as possible in order to establish reasonable accommodations. Reasonable accommodations are established through an interactive process between you, your instructor(s) and Ability Services. It is the policy and practice of HCC to create inclusive and accessible learning environments consistent with federal and state law. For more information, please go to <http://www.hccs.edu/district/students/disability-services/>

Ability Services Contact Information

Central College	713-718-6164	
Coleman College	713-718-7376	
Northeast College	713-718-8322	
Northwest College	713-718-5422	713-718-5408
Southeast College	713-718-7144	
Southwest College	713-718-5910	
Adaptive Equipment/Assistive Technology	713-718-6629	713-718-5604
Interpreting and CART services	713-718-6333	

HCC Policy Statement: Title IX:

Houston Community College is committed to cultivating an environment free from inappropriate conduct of a sexual or gender-based nature including sex discrimination, sexual assault, sexual harassment, and sexual violence. Sex discrimination includes all forms of sexual and gender-based misconduct and violates an individual’s fundamental rights and personal dignity. Title IX prohibits discrimination on the basis of sex-including pregnancy and parental status-in educational programs and activities. If you require an accommodation due to pregnancy please contact an Abilities Services Counselor. The Director of EEO/Compliance is designated as the Title IX Coordinator and Section 504 Coordinator. All inquiries concerning HCC policies, compliance with applicable laws, statutes, and regulations (such as Title VI, Title IX, and Section 504), and complaints may be directed to:

David Cross
Director EEO/Compliance
Office of Institutional Equity & Diversity
3100 Main
Houston, TX 77266-7517 or Institutional.Equity@hccs.edu
Phone number: 713-718-8271

Campus Carry statement:

At HCC the safety of our students, staff, and faculty is our first priority. As of August 1, 2017, Houston Community College is subject to the Campus Carry Law (SB11 2015). For more information, visit the HCC Campus Carry web page at <http://www.hccs.edu/district/departments/police/campus-carry/>.”

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 students' 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 mean 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.

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 4/1/2019**

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

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.

Misuse of Electronic Devices in the Classroom

The use of electronic devices by students in the classroom is up to the discretion of the instructor. Any use of such devices for purposes other than student learning is strictly prohibited unless authorized as an appropriate ADA accommodation from the ADA Counselor.

Instructor Requirements

- A. **READING:** Reading at the college level means the ability to analyze and interpret a variety of printed materials;
- B. **WRITING:** Competency/outcome in writing is the ability to produce clear, correct, and coherent prose adapted to purpose, occasion, and audience;
- C. **SPEAKING:** Competence in speaking is the ability to communicate orally in clear, coherent, and persuasive language appropriate to purpose, occasion, and audience;
- D. **LISTENING:** Listening at the college level means the ability to analyze and interpret various forms of spoken communication;
- E. **CRITICAL THINKING:** Critical thinking embraces methods for applying both qualitative and quantitative skills analytically and creatively to subject matter in order to evaluate arguments and to construct alternative strategies.

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:

The HCC Tutoring Centers provide free tutoring for individual subjects offered at specific times throughout the week on various campuses. There is no need to make an appointment. If you need a tutor, visit: www.hccs.edu/findatutor for times and locations. For more information about tutoring at HCC, visit www.hccs.edu/district/students/tutoring.

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 <https://hccs.upswing.io/>. 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
- Admin. Assistant	Tiffany Pham	SW Campus	713-718-7770	Stafford, Scarcella, N108
- Admin. Assistant	Dipal Parekh	SW Campus	713-718-2477	Stafford, Scarcella, N108
Math Assoc. Chair	Clen Vance	CE Campus	713-718-6421	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
- Admin. Assistant	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.

Course Schedule:

CHAPTER

Section Numbers

Topics

Chapter 1 Trigonometric Functions

Topics to be covered include: angles, degree measure, angle relationships, definitions of trigonometric functions, and basic identities.

- 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

Topics to be covered include: trigonometric functions of angles and problem solving with right triangles.

- 2.1 Trigonometric Functions of Acute Angles
 - 2.2 Trigonometric Functions of Non-Acute Angles
 - 2.3 Finding Trigonometric Function Values Using a Calculator
 - 2.4 Solving Right Triangles
 - 2.5 Further Applications of Right Triangles
-

Chapter 3 Radian Measure and the Unit Circle

(3 hours)

Topics to be covered include: radian measure, the unit circle, linear and angular speed.

- 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

Topics to be covered include: graphs of the trigonometric functions.

- 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

Topics to be covered include: coverage of fundamental trigonometric identities, verification of trigonometric identities, and identities involving multiple angles.

- 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)

Topics to be covered include: inverse trigonometric functions and trigonometric equations.

- 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

Topics to be covered include: Law of Sines, Law of Cosines, and vectors.

- 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 Vectors, Operations, and the Dot Product**
- 7.5 Applications of Vectors**

Chapter 8 Complex Numbers, Polar Equations, and Parametric Equations

Topics to be covered include: complex numbers, trigonometric form of complex numbers, DeMoivre's Theorem, polar coordinates and graphs of polar equations.

- 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)**

Comprehensive Final Examination

2 hours
