Mathematics
Northline Campus

Math 2412: Precalculus
CRN34502– Fall/2017
| Online |Distance Education/ Second Start
4 hour lecture course / 64 hours per semester/ 12 weeks
Textbook: Precalculus, 6th Edition, by Robert Blitzer
ISBN-978-0134765488

MyMathLab: afaneh73917

Instructor: Mohammad Afaneh

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

Office location and hours: Northline / By appointment

Course Description
Math 2412: Precalculus. In-depth combined study of algebra, trigonometry, and other topics for calculus readiness. Topics include elementary theory of functions and equations, analytic geometry, vectors, mathematical induction, sequences and finite series, and an introduction limits.

Prerequisites
Math 1314: Pass with a "C" or better AND Math 1316: Pass with a "C" or better or Departmental approval

Course Goal
This course is intended primarily to prepare students for calculus. It can also be used for general mathematics credit.

Course Student Learning Outcomes (SLO)

1. Demonstrate and apply knowledge of properties of functions.
2. Recognize and apply algebraic and transcendental functions and solve related equations.
3. Apply graphing techniques to algebraic and transcendental functions.
4. Compute the values of trigonometric functions for key angles in all quadrants of the unit circle measured in both degrees and radians.
5. Prove trigonometric identities.
6. Solve right and oblique triangles.
7. Evaluate limits analytically

Learning objectives

Students will:

1. Develop and use various problem-solving techniques.
2. Recognize functions as ordered pairs.
3. Determine the graph of an algebraic equation or function.
4. Understand synthetic division.
5. Develop partial fraction decomposition.
6. Find the zeros of real functions
7. Solve polynomial equations.
8. Utilize the six basic trigonometric functions.
9. Apply the Law of sines and the Law of cosines for various types of situations.
10. Verify various trigonometric identities.
11. Find the powers and roots of complex numbers using DeMoivre's Theorem.
12. Understand basic vectors (2 dimensional).
13. Convert points in a rectangular coordinate system to polar coordinates.
14. Recognize algebraic formulas relating to circles, parabolas, ellipses, and hyperbolas.

15. Use translation of axes, rotation of axes, and polar equations of conics.
16. Recognize the use of arithmetic and geometric sequences.
17. Use summation notation to represent a series.
18. Understand and use the Binomial theorem.
19. Understand mathematical induction.
20. Understand the basic concepts of limits.

Core Objectives

Given the rapid evolution of necessary knowledge and skills and the need to take into account global, national, state, and local cultures, the core curriculum must ensure that students will develop the essential knowledge and skills they need to be successful in college, in a career, in their communities, and in life. Through the Texas Core Curriculum, students will gain a foundation of knowledge of human cultures and the physical and natural world, develop principles of personal and social responsibility for living in a diverse world, and advance intellectual and practical skills that are essential for all learning.

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

Examination	Covered	Dates	Method
Exam One	Unit I and Unit II	Oct 12 – Oct 14	Proctored. 3100 Main St
Exam Two	Unit III	Nov 16 – Nov 18	Online-Closed Book
Final Exam	All Units	Dec 14 – Dec 16	Proctored.

Dec. 14 @3100 Main St.; Dec. 15 & 16 @Central Campus San Jac. Building (Final Exam)

Thursday: Testing starts @4pm – Last Admit 6:50pm (Student must enter through garage to skybridge to access building after 6pm)

Friday: Testing starts @10am – Last Admit 6:50pm (Student must enter through garage to skybridge to access building after 6pm)

Saturday: Testing starts @10am – Last Admit 12:50pm (Student must enter through garage to skybridge to access building all day)

Due to Hurricane Harvey do the following Assignment: Watch the Lecture Videos for Unit I and II. Also, construct the Unit Circle indicating all special angles.

Instructional Methods

Using technology such as Videos and eBook. **MyMathLab Code :afaneh73917**

Calculators are allowed: Scientific only

Student Assignments
We will have two exams and the Final Exam.

Assessments

Homework ----------20 Pts
Exam One----------25Pts
Exam Two----------25%
Final Exam----------30 %.
Total ----------100%

Average = Exam 1*(25%) +Exam2*(25%) +HW*(20%) +Final *(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 is Nov 03, 2017.**

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

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
Students are required to have access a computer and to class through MyMathLab.
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# 421.** 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.

$EGLS_3$ -- 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

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.

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

Course Outline: Instructors may find it preferable to cover the course topics in the order listed below. However, the instructor may choose to organize topics in any order, but all material must be covered.

APPROXIMATE TIME	TEXT REFERENCE
Unit I – Factoring with negative rational exponents	**Section:** Addendum 1
Difference Quotient	**Section:** 1.3 p. 180-1
Partial Fractions	**Section:** 7.3

(3 hours)

Review Topics include the following: Graphs and graphing utilities, lines in the plane, slope, functions, polynomial functions of higher degree, synthetic division, real zeros of polynomial functions, and the intermediate value theorem. Required topics are: Factoring with negative rational exponents, finding the difference quotient, and partial fraction decomposition.

Unit II – Trigonometry (review)	**Sections:** {4.2, 4.5 - 4.7} (Review)
Analytic Trigonometry (review)	**Sections:** {5.1 – 5.3} (Review)
Analytic Trigonometry	**Sections:** 5.4, 5.5

{5 hours at most for review}

(4 hours)

This unit contains Trigonometric Functions, the unit circle, graphs of the trigonometric functions, inverse trigonometric functions, verifying identities, sum and difference formulas, double angle and half-angle formulas, sum-to-product and product-to-sum formulas, and solving trigonometric equations.

Unit III – Applications of Trigonometry **Sections:** Chapter 6

(12 hours)

This unit includes Law of Sines, Law of Cosines, Polar coordinates, graphs of Polar equations, DeMoivre's Theorem, vectors, and the dot product.

Unit IV – Conic Sections and Analytic Geometry **Sections:** Chapter 9

(15 hours)

Topics include the ellipse, the hyperbola, the parabola, rotation of axes, parametric equations, and conic sections in polar coordinates.

Unit V – Sequences, Induction, and Probability **Sections:** 10.1 – 10.5

(14 hours)

This unit contains Sequences and summation notation, arithmetic sequences, Geometric Sequences and Series, Mathematical Induction, and The Binomial Theorem.

Unit VI – Introduction to Calculus **Sections:** 11.1 – 11.4

(12 hours)

This unit contains an introduction to limits using tables and properties, continuity, and an introduction to derivatives.