

INSTRUCTOR:	Houssam Kalajo
CONTACT INFORMATION:	E-mail Houssam.kalajo@hccs.edu

Course Description

Topics include quadratics, polynomial, rational, logarithmic and exponential functions, system of equations, and matrices and determinants. A departmental final examination will be given in this course.

Prerequisites

Math 0312, its equivalent, or an acceptable placement test score.

Credits: 3 credit hours (3 lectures).

Course Goal

This course is designed as a review of advanced topics in Algebra for science and engineering students who plan to take the Calculus sequence in preparation for their various degree programs. It is also intended for non-technical students who need college mathematics credits to fulfill requirements for graduation and prerequisites for other courses. It is generally transferable as math credit for non-science majors to other disciplines.

Course Student Learning Outcomes (SLO):

1. Solve algebraic equations and inequalities involving linear and nonlinear expressions.
2. Examine and interpret the graphs of circles, polynomial functions, rational functions, basic functions, and their transformations.
3. Apply the basic knowledge of a function in order to simplify functions, combine functions, and solve application problems involving linear and nonlinear functions.
4. Perform basic matrix operations.

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

1. Solve Quadratic Equations in one variable by the method of factoring, square root property, completing the square and the quadratic formula.
2. Find the distance and midpoint between two points in the Cartesian plane.
3. Solve radical equations, fractional equations, and equations of quadratic form.
4. Recognize the equation of a straight line, graph the equation of a straight line, find the slope and intercepts of a line, know the relationship between the slopes of parallel and perpendicular lines, and be able to determine the equation of a line from information such as two points on the line, or one point on the line and the slope of the line.
5. Know the definition of a function, determine the domain and range of a function, evaluate expressions involving functional notation, simplify expressions involving the algebra of functions, graph functions by plotting points, know the definition of inverse functions, and given a function find its inverse.
6. Graph linear functions, quadratic functions, piecewise-defined functions, absolute value functions, polynomial functions, rational functions, exponential functions, and logarithmic functions.
7. Solve linear inequalities and linear equations involving absolute value, state the solution in interval notation, and graph the solution.
8. Solve non-linear (quadratic and rational) inequalities, state the solution in interval notation, and graph the solution.
9. Understand vertical and horizontal shifts, stretching, shrinking, and reflections of graphs of functions.
10. Recognize the equation of a circle, sketch the graph of a circle, and find the equation of a circle.
11. Determine the rational zeros of a polynomial.
12. Understand the inverse relationship between the exponential and logarithmic functions.
13. Solve exponential and logarithmic equations.
14. Solve systems of linear and nonlinear in two variables.
15. Perform operations with matrices.
16. Recognize, solve and apply systems of linear equations using matrices.

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.

Students enrolled in this core curriculum course will complete a research project or case study designed to cultivate the following 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.

Instructional Methods

As an instructor, I want my students to be successful. I feel that it is my responsibility to provide you with knowledge concerning the field of mathematics, modeling good analytical problem solving strategies, and organizing and monitoring the success of each student with homework that allows you to connect the information that you learn in this course to applications in other course work and life in the real world.

As a student wanting to learn about the field of mathematics, it is your responsibility to read the textbook, submit assignments on the due dates, study for the exams, and enjoy yourself while experiencing the real world of mathematics.

Student Assignments

Assignments have been developed that will enhance your learning. To better understand a topic, you will be given assignments on key information that you will need to remember for your success in your career. Students will be required to successfully complete the following:

Mathematics Homework

All homework and exams must be completed online using Connect Math. The Connect Math Course Code (which can be located on Canvas-Eagle Online, you must log into Canvas class to get this key) to be used for registration purposes only. To register for Connect Math and to access the homework, go to www.connectmath.com. The course ID you need is **available on HCC Canvas - Eagle Online**.

Note:

- ❖ No extra work is given for extra credit.
- ❖ No extra work is given to “bring up my grade”.
- ❖ Be sure that your name in Connect Math exactly matches your name on HCC Canvas - Eagle Online.

Exam Policy: There will be four major examinations plus the final exam which is departmental exam, consisting of 33 multiple choice problems. The problems cover only the required material. You will be allowed 2 hours to complete each exam.

Make-up Policy

Tests must be taken on the specified day. **No MAKE-UP** examinations will be given. The final examination grade will be substituted for one missed test only, **regardless of the reason**. If a second test is missed, the score for that test is zero; thus, more weight will be given to the final examination than would be the case if all examinations were taken.

Grading policy

Your course grade will be computed as follows:

Best 3 of 4 exams	45% (each 15%)
Homework	20%
Final exam	35%

One lowest major exam out of 4 will be dropped.

Final Average Score = Average of 3 exams * 0.45 + HWK (Connect Math) * 0.20 + Final Exam * 0.35

Your final course grade is based on the following standard HCC scale.

Final Average	90 ≤ Avg ≤ 100	80 ≤ Avg < 90	70 ≤ Avg < 80	60 ≤ Avg < 70	Avg < 60
Final Course Grade	A	B	C	D	F or FX

Final Examination:

The final exam is comprehensive and proctored. All questions on it can deal with any of the course objectives. The final examination must be taken by all students. The final exam for this course has to be taken on campus at 3100 Main Street or central campus. The final exam is a closed book exam. Do not bring any books, study questions, or notes. Calculators, cell phones or any other electronic devices are not allowed. Your professor may not be at the testing location, so if you have specific questions concerning the final exam, you need to contact your professor prior to the testing day. **In order to take the exam at the DE testing center, the student must make a reservation.** To make a reservation to take an exam, go to <https://forms.hccs.edu/PerfectForms/player.htm?f=4JgAgAkE> OR <https://forms.hccs.edu/PerfectForms/PresentationServer/%28S%2824nk3m3105fogs55byezi55%29%29/For.aspx/Play/4JgAgAkE?f=4JgAgAkE> Reserve a spot **early, but not earlier than 2 weeks before the final exam is scheduled.** Fill out a form with your name, your ID number, and the date and time that you would like to take the final exam. You should receive a confirmation of your spot being reserved. A picture ID is required before students are allowed to take the test.

If you are taking this class outside Houston, you may arrange for a proctor at a college or university near you. You have to do that through the Distance Education Department as soon as the class starts. For additional questions, you may contact: de@hccs.edu

Calculators:

*Calculators and formulas are **NOT** allowed to be used on any examinations, including the final exam.*

Tests Schedule:

Test # 1	10/27/2016 – 10/29/2016	Sections 1.3 – 1.7 and 2.2 - 2.3
Test # 2	11/10/2016 – 11/12/2016	Sections 2.4 - 2.8 and 3.1 - 3.2
Test # 3	11/24/2016 – 11/26/2016	Sections 3.3 – 3.6 and 4.1 – 4.2
Test # 4	12/01/2016 – 12/03/2016	Sections 4.3 - 4.5, 5.1, 5.4, 6.1, 6.3, and 6.5
Final Exam	12/08/2016 – 12/10/2016	Comprehensive - Chapters 1 - 6 (proctored)

Technical Support

If you should experience technical difficulties during the semester, these problems are not under the control of the instructor. Such technical problems should be directed to technical support. For Canvas- Eagle Online tech support, go to the HCC Canvas - Eagle Online support website, call 713-718-2000, options 4, 2, 3 (available 24/7). For Connect Math, please contact Connect Math Support at <http://support.connectmath.com> or call (949) 390-2095.

HCC Policy Statement - ADA

Services to Students with Disabilities

Students who require reasonable accommodations for disabilities are encouraged to report to Dr. Becky Hauri at 713-718-7909 to make necessary arrangements. Faculty is only authorized to provide accommodations by the Disability Support Service Office.

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 oi@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 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)

Internet Access:

This class is a distance-education class using Canvas- Eagle Online for notes, reviews, and assessments. Each student must maintain internet access throughout this course. Additionally, students are expected to maintain a state of technical compliance, including (but not limited to) the following: up-to-date software as required by the instructor, a stable Internet connection, and use of the Firefox browser when using Canvas - Eagle Online. The instructor is not required to give consideration for lost/missing/unacceptable work stemming from technical non-compliance or end-user technical issues. Failure to maintain internet access shall not constitute a valid excuse for missed work. Any student who cannot keep up with the coursework due to a lack of a computer or internet access must drop the course. Any student found to have quit logging in (two weeks during a regular term) and whom the Professor is unable to contact is subject to being dropped without further warning, resulting in either a "W" or a "FX" grade, depending upon the time of the term at which the behavior is noted.

Class Attendance:

As stated in the HCC Catalog, all students are expected to attend classes regularly. Students in DE courses must log into their Eagle Online Canvas class, or they will be counted as absent. Just like an on-campus class, your regular participation is required. The participation requirement is given below. Although it is the responsibility of the student to withdraw officially from a course, the instructor also has the authority to block a student from accessing Eagle Online, and/or to drop a student for excessive absences or failure to participate regularly. DE students who do not log into their Canvas- Eagle Online class before the Official Day of Record will be AUTOMATICALLY dropped for nonattendance. Completing the DE online orientation does not count as attendance. Logging into a DE course without active participation is regarded as non-attending.

Participation Requirement:

Students must complete the entire Syllabus & Orientation Section in the Canvas- Eagle Online course **by the Official Day of Record**. Evidence that the student has completed the participation requirement will be completion of the Introductory Quiz with a perfect score before the Official Day of Record.

Distance Education Student Handbook:

The Distance Education Student Handbook contains policies and procedures unique to the DE student. Students should have reviewed the handbook as part of the mandatory orientation. It is the student's responsibility to be familiar with the handbook's contents. The handbook contains valuable information, answers, and resources, such as DE contacts, policies and procedures (how to drop, attendance requirements, etc.), student services (ADA, financial aid, degree planning, etc.), course information, testing procedures, technical support, and academic calendars. Refer to the DE Student Handbook by visiting this link: <http://de.hccs.edu/de/de-student-handbook>

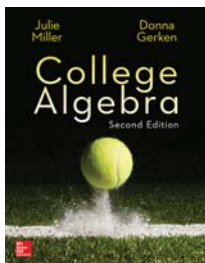
HCC Course Withdrawal Policy:

If you feel that you cannot complete this course, you will need to withdraw from the course prior to the final date of withdrawal, 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. If you wish to drop the class, then it is your responsibility to do that before the final drop date. **Neither you nor your instructor will be able to perform the drop after the final drop date and I will not drop you for nonattendance. The last day to withdraw from this course with a grade of W is 11/18/2016.**

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.

Instructional Materials



Textbook: College Algebra, 2nd ed. by Miller and Gerken, McGraw-Hill, 2017.

ISBN-13: 978-007783644

Students will either need to purchase their textbook/access code bundle from the bookstore, OR they can purchase online via the Connect Math registration process.

Course Outline

Pre-Test on ConnectMath must be taken by all students. This test is given to measure the student readiness for the course only. **This grade will not be used to calculate your final average score in the course.**

APPROXIMATE TIME

TEXT REFERENCE

**Unit I - Equations and Inequalities
(8 hours)**

Sections: 1.3, 1.4, 1.5, 1.6, 1.7

This unit includes graphs of equations, quadratic equations and applications, complex numbers, other types of equations, linear inequalities in one variable, and other types of inequalities.

Notes: 1. Section 1.4: This section includes quadratic equations with both real and complex solutions, as complex arithmetic is covered in section 1.3.
2. Section 1.3: Operations with complex numbers (*Optional*).

**Unit II – Functions and Their Graphs
(10 hours)**

Sections: 2.2 → 2.8

This unit includes linear equations in two variables, functions, analyzing graphs of functions, a library of Parent functions, transformations of functions, combinations of functions, and composite functions.

Notes: 1. Section 2.5: The latter half of this section on applications of linear equations and linear regression should be omitted.

**Unit III - Polynomial Functions
(8 hours)**

Sections 3.1 → 3.6

This chapter includes quadratic functions and models, polynomial functions of higher degree, synthetic division, zeros of polynomial functions, rational functions, and inequalities.

**Unit IV - Exponential and Logarithmic Functions
(6 hours)**

Sections: 4.1 → 4.5

This unit includes inverse functions, exponential functions and their graphs, logarithmic functions and their graphs, properties of logarithm and exponential and logarithmic equations.

**Unit V – Systems and Matrices
(4 hours)**

*Sections: 5.1, 5.4, 6.1, 6.3
6.5(exclude Cramer's rule)*

This unit includes linear and nonlinear systems of equations, two variable linear systems, solving system of equations using matrices, operations with matrices and the determinant of a square matrix.

FINAL GRADE OF FX: Students who stop attending class and do not withdraw themselves prior to the withdrawal deadline may either be dropped by their professor for excessive absences or be assigned the final grade of “FX” at the end of the semester. Students who stop attending classes will receive a grade of “FX”, compared to an earned grade of “F” which is due to poor performance. Logging into a DE course without active participation is seen as non-attending. Please note that HCC will not disperse financial aid funding for students who have never attended class. Students who receive financial aid but fail to attend class will be reported to the Department of Education and may have to pay back their aid. A grade of “FX” is treated exactly the same as a grade of “F” in terms of GPA, probation, suspension, and satisfactory academic progress.

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/ 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.

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
Technical Support Specialist	Hien Nguyen	NE Campus	713-718-2440	Northline Building, Rm 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.

Resources:

1. Any student enrolled in Math at HCCS has access to the Learning Support Center (LRC) where they may get additional help in understanding the theory or in improving their skills. The Center is staffed with mathematics faculty and student assistants, and offers tutorial help, video tapes and computer-assisted drills. A student's Solutions manual may be obtained from the bookstore. Check any HCC campuses for the math tutoring schedule.
2. **Ask Online Tutoring:** Students can get **free** assistance, 24 hours a day, 7 days a week, in Mathematics, English and many other subjects at www.hccs.askonline.net. Typically, posted questions will be answered by an HCC tutor or faculty member within 24 hours.
3. There are also several online math resources that you can find with an internet search like the following links:
 - <http://ctle3.hccs.edu/alltutoring/index.php?-link=stuFind>
 - <http://khanacademy.org>
 - <http://sophia.hccs.edu/~douglas.bump/math>
 - <http://www.purplemath.com/>
 - <http://www.awl.com/tutorcenter/stinfo.html>
 - <http://www.harcourtcollege.com/math/nettutor/0030260264/>
 - <http://www.mhhe.com/barnett>