Department of Mathematics
Codwell Campus

Math 1314: College Algebra
CRN 76355 – Spring 2014
Northline| 11:00 – 12:30 pm | Monday and Wednesday
3 hour lecture course / 48 hours per semester/ 16 weeks
Textbook: College Algebra Alternate Edition by Larson, (8th ed)
ISBN-13: 9780495970651

Instructor: Mohammad Afaneh

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

Office location and hours: 321 : 9 am – 1 pm on TR
9am – 1 pm on MW

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 or its equivalent or an acceptable placement test score.

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.

Learning outcomes
Students will:
1.1 Solve Quadratic Equations in one variable by the method of factoring, square root property, completing the square and the quadratic formula.
1.2 Solve radical equations, fractional equations, and equations of quadratic form.
1.3 Solve linear inequalities and linear equations involving absolute value, state the solution in interval notation, and graph the solution.
1.4 Solve non-linear (quadratic and rational) inequalities, state the solution in interval notation, and graph the solution.
1.5 Solve exponential and logarithmic equations.
1.6 Solve systems of linear and nonlinear in two variables.
2.1 Find the distance and midpoint between two points in the Cartesian Plane.
2.2 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
2.3 Graph linear functions, quadratic functions, piecewise-defined functions, absolute value functions, polynomial functions, rational functions, exponential functions, and logarithmic functions.
2.4 Understand vertical and horizontal shifts, stretching, shrinking, and reflections of graphs of functions.
2.5 Recognize the equation of a circle, sketch the graph of a circle, and find the equation of a circle.
2.6 Determine the rational zeros of a polynomial.
3.1 Apply 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, use the definition
3.2 Understand the inverse relationship between the exponential and logarithmic functions.
4.1 Perform operations with matrices

CALENDAR

Test	Chapters Covered on Test	Date
Test #1	P6, 1.1, 1.4, 1.5, 1.6, 1.7, and 1.8	TBA
Test #2	2.1 → 2.7	TBA
Test #3	3.1 – 3.4, 4.1, and 4.2	TBA
Test #4	5.1 → 5.4, 6.1, 6.2, 7.2, and 7.4	TBA
Final Exam	Chapter 1 - 7	May 5, 2014

Instructional Methods
This is an in-person class. There are two meetings per week. Lectures will be given in a traditional method using markers and whiteboard.

Student Assignments

Homework policy:
Textbook, including Web assign is required for this course. Homework will be online using WebAssign. The Class Key: **hccs 2540 6245**. Homework will count 24% of your grade.

Testing policy:
There are four major exams and a comprehensive final exam. The worse major exam will be dropped. Each major exam will count 17%. The final exam will count 25%.

Make-up policy:
There is no make-up exam in this class. If you miss one exam, it will be dropped. If you miss the second exam, it will be zero.

Final Examination:
The final examination is departmental and consists of 33 multiple-choice problems. The problems cover all the material required in the course. **Everyone MUST take the final exam**.

Grading policy:

Exam 1	15%
Exam 2	15%
Exam 3	15%
Homework	15%
Final Exam	25%

Grading formula: **Final average = 0.15(HW avg.) + 0.60(Exam Avg.) + 0.25(Final exam)**

Textbook: College Algebra Alternate Edition by Larson, Cengage Learning, 2011.

Course Outline: The lecture/examination schedule given below is suggested for usage; the instructor is free to modify the schedule to meet his/her own needs.

Pre-test: A pre-test may be given during the first class period. This test is to measure the student readiness for the course. The tests should be retained for informational purposes and the grade may not be used to counsel a student into taking another course. Grade on pre-test should be recorded on HCCS Attendance/Grade Sheet. **This grade must not be used to calculate the grades of students in the course.**

APPROXIMATE TIME	TEXT REFERENCE

Unit I - Equations and Inequalities *Sections: P.6, 1.1, 1.4*, 1.5*, 1.6, 1.7, 1.8*
(7 hours)

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 P.6: The Cartesian Plane, Distance Formula, and Midpoint Formula.
2. Section 1.4: This section includes only quadratic equations with real solutions.
3. Section 1.5: Operations with complex numbers (*Optional*).
This section introduces complex solutions (non-real) to quadratic equations.

Unit II - Functions and Their Graphs *Sections: 2.1 → 2.7*
(10 hours)

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

Unit III - Polynomial Functions *Sections 3.1, 3.2, 3.3, 3.4*
(6 hours)

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

Unit IV – Rational Functions and Conics *Sections 4.1, 4.2*
(3 hours)
This unit includes rational functions and asymptotes and graphs of rational functions.

Unit V - Exponential and Logarithmic Functions *Sections: 5.1, → 5.4, (5.5 Optional).*

(6 hours)

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

Unit VI – Systems and Matrices *Sections: 6.1, 6.2, 7.2, 7.4*
(4 hours)

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

Departmental Policies**:**

1. Each instructor must cover all course topics by the end of the semester. The final exam is comprehensive and questions on it can deal with any of the course objectives.
2. Each student should receive a copy of the instructor's student syllabus for the course during the first week of class.
3. A minimum of three in-class tests and a comprehensive final departmental examination must be given. The final examination must be taken by all students.
4. All major tests should be announced at least one week or the equivalent in advance.
5. The final exam should count between 25 to 40 percent.

6. The final course average will be used in the usual manner (90-100 "A"; 80-89 "B"; 70-79 "C"; 60-69 "D"; Below 60 "F").
7. Neither an open book nor a take home major test may be given at the discretion of the instructor.
8. Any review sheet should be comprehensive and the student should not feel that classroom notes, homework, and tests may be ignored in favor of the review sheet for any examination.
9. *Calculators may **NOT** be used **on any examinations, including the final exam***.

Resource Materials: Any student enrolled in MATH 1314 at HCCS has access to the various MATH labs in the system. The labs are staffed with MATHEMATICS faculty and student assistants, and offers tutorial help, video tapes and computer aided tutorial. Tutoring is also available online at http://hccs.askonline.net/

Suggested Methods: It is helpful to begin each class with questions concerning the material discussed and the assigned homework problems. In presenting new material, it is suggested that an explanation be followed by students working examples in class. Students should be encouraged to work the review exercises at the end of each chapter. Also, they should be encouraged to visit the Academic Support Center.

Final Examination: The final exam is departmental, consisting of 33 multiple choice problems. The problems cover only the required material.

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

FINAL AVERAGE	FINAL COURSE GRADE
$90 \leq$ Average $\leq 100\%$	A
$80 \leq$ Average $< 90\%$	B
$70 \leq$ Average $< 80\%$	C
$60 \leq$ Average $< 70\%$	D
Average $< 60\%$	F

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.

Disability Support Services Offices:
System: 713.718.5165
Central: 713.718.6164 – also for Deaf and Hard of Hearing Services and Students Outside of the HCC District service areas.
Northwest: 713.718.5422
Northeast: 713.718.8420
Southeast: 713.718.7218
Southwest: 713.718.7909

After student accommodation letters have been approved by the DSS office and submitted to DE Counseling for processing, students will receive an email confirmation informing them of the Instructional Support Specialist (ISS) assigned to their professor.

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 Monday 03/31/2014 before 4:30 pm.**

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
You are expected to behave like an adult. Your attitude in the classroom will affect your final class grade. The following are not allowed during class and will affect your final class grade negatively:

1) Talking
2) Texting
3) Leaving the classroom to answer your phone.
4) Walking-in late
5) Leaving early
6) Sleeping

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

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:

Free tutoring is available in **Room 423 at Northline Campus and 149 at Pinemont Campus.** 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.