	SOUTHWEST COLLEGE **Department of Mathematics**

COURSE SYLLABUS

MATH 1314: College Algebra

Spring, 2012 / CRN 81514 / Mon, Wed, 2:30pm – 4pm / West Loop
Room 170

INSTRUCTOR:	Sam Wilson
CONTACT INFORMATION:	samuel.wilson@hccs.edu

Office location and hours:

Please feel free to contact me concerning any problems that you are experiencing in this course. You do not need to wait until you have received a poor grade before asking for my assistance. Your performance in my class is very important to me. I am available to hear your concerns and just to discuss course topics after class (4pm to 4:30pm, Mon, Wed) or by appointment.

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

Prerequisites
Must be placed into college-level mathematics or completion of MATH 0312.

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 to other disciplines as math credit for non-science majors.

Student Learning Outcomes	Course Objectives
1. Solve algebraic equations and inequalities involving linear and nonlinear expressions.	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 non linear in two variables.
2. Examine and interpret the graphs of circles, and basic functions in Algebra and their transformations including polynomial functions, rational functions, exponential functions and logarithmic functions.	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 from information such as two points on the line, or one point on the line and the slope of the 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. Apply the basic knowledge of a function in order to simplify functions, combine functions, and solve application problems involving linear and nonlinear functions.	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 of inverse functions, and given a function find its inverse. 3.2 Understand the inverse relationship between the exponential and logarithmic functions.

4. Perform basic matrix operations.	4.1 Perform operations with matrices.

Instructional Methods
MATH 1314 is a required course for many students.

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, participate in classroom activities, attend class, and enjoy yourself while experiencing the real world of mathematics.

As I believe that engaging the students in the learning is essential for teaching to be effective, you will spend a portion of class time involved in problem solving activities. You will be involved in discussions with your classmates and your instructor. As you will want to contribute to these discussions, you will need to come to class prepared to discuss, analyze and evaluate information from your text and other assigned readings.

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:

Exam Policy:
There will be 3 Tests and a departmental Final Exam. All tests will be graded and returned to students within one week. If you perform below your expectations or fail any exam, please set up a conference with the instructor as soon as possible.

Make-up
There are no make-up exams.

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

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

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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.

Instructional Materials

Textbook:
College Algebra, Alternate Edition
by Larson
Publisher: Cengage Learning, 2011
ISBN-13: 9781439048696

APPROXIMATE TIME	TEXT REFERENCE

Unit I - Equations and Inequalities   *Sections: 1.1, 14, 1.5, 1.6, 1.7, 1.8*
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.

Unit II - Functions and Their Graphs   *Sections: 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7*
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*
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*
This unit includes rational functions and asymptotes and graphs of rational functions.

Unit V - Exponential and Logarithmic Functions   *Sections: 5.1, 5.2, 5.3, 5.4 (5.5optional).*
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*

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

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 713-718-7910 to make necessary arrangements. Faculty is only authorized to provide accommodations by the Disability Support Service Office

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 College'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 that has not been 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 attend all lecture and labs regularly. 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 paper if you unavoidably miss a class.

Class attendance equals class success.

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, which is given in the college calendar. 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.

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 charges 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
It is our shared responsibility to develop and maintain a positive learning environment for everyone. As your instructor, I take this responsibility very seriously and will inform members of the class if their behavior makes it difficult for him/her to carry out this task. As a fellow learner, you are to respect the learning needs of your classmates and assist your instructor achieve this critical goal.

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

<u>As your Instructor, it is my responsibility to</u>**:**
- Provide the grading scale and detailed grading formula explaining how student grades are to be derived
- Facilitate an effective learning environment through class activities, discussions, and lectures
- Description of any special projects or assignments
- Inform students of policies such as attendance, withdrawal, tardiness and make up
- Provide the course outline and class calendar which will include a description of any special projects or assignments, Arrange to meet with individual students before and after class as required

Student Requirements

<u>To be successful in this class, it is the student's responsibility to</u>**:**
- Attend class and participate in class discussions and activities
- Read and comprehend the textbook
- Complete the required assignments and exams:
- Chapter Exams, Homework, Final Exam
- Ask for help when there is a question or problem
- Keep copies of all paperwork, including this syllabus, handouts and all assignments

Grading

Your instructor will conduct quizzes, exams, and assessments that you can use to determine how successful you are at achieving the course learning outcomes (mastery of course content and skills) outlined in the syllabus. If you find you are not mastering the material and skills, you are encouraged to reflect on how you study and prepare for each class. Your instructor welcomes a dialogue on what you discover and may be able to assist you in finding resources on campus that will improve your performance.

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

Grading Formula:

Homework + Best Test + 2nd Best Test + Final / 4 = Final Grade

Homework (25%)
Exams (50% - there will be 3 tests, lowest grade dropped)
Final Exam (25%)