HOUSTON COMMUNITY COLLEGE SYSTEM

College Algebra

COURSE SYLLABUS FOR MATH 1314

CRN 78331

Spring, 2011
Mondays and Wednesdays, 2:00 – 3:30

INSTRUCTOR:	**Morales, Warren**
PHONE:	**713-560-7951**
EMAIL:	**wmoraless@houstonisd.org**
INSTRUCTOR ID:	**Morales62286**
DROP WITH "W":	**Thursday, April 21, 4:30 pm**
SPRING BREAK:	**Monday, March 14 – Friday, March 18**
INSTRUCTION ENDS:	**Thursday, May 5**
FINAL EXAM:	**Wednesday, May 11, 2:00 – 4:00 pm**

Textbook:
Essentials of College Algebra. Lial, Hornsby, and Schneider. Pearson/Addison-Wesley: Boston, 2008.

Dual-Credit Textbook (for dual-credit students):
Algebra 2. Larson, Boswell, Kanold, and Stiff. McDougal Littell. Houghton Mifflin: Boston, 2007

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

Prerequisites: Math 0312 or MATH 0112: Pass with "C" or better
Or
Acceptable placement test score.

Credits: 3 credit hours (3 lecture).

Course Intent & Audience:
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.

Make-up policy:
Make-up exams will not be given unless the student provides a written medical note from a medical doctor indicating the reason for the absence from the class. If a non-medical emergency arises, the student must contact the instructor. In such cases, make-up exams will be decided on an individual basis.

Attendance policy:
Attendance is checked during every class. When you have accumulated 12.5 % or 11 hours of absences, the instructor is obligated by law to drop you from the class.

Tardiness policy:
A student who is more than 30 minutes tardy to the class will be considered absent from the class.

Homework Policy: Students will be assigned homework from ***MyMathLab*** as well as problem sets from the text. A homework grade will be issued at the end of the semester and will count the equivalent of one test grade.

Grading policy: Your final course grade is based on the following standard HCCS 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

For students receiving high school dual-credit, the following grade will be posted as the high school grade equivalent: **A** = 95; **B** = 85; **C** = 77; **D** = 72; **F** = 60.

There will be five (5) in-class tests during the semester. Each test will be worth 100 points. Homework will be done with ***MyMathLab*** and selected problems from the text. The homework grade will count as a major test grade. The tests will be weighted as 75% of the total grade, and the final exam will be weighted as 25% of the total grade.

Possible:		My Scores:	
Test 1:	100	Test 1:	_____
Test 2:	100	Test 2:	_____
Test 3:	100	Test 3:	_____
Test 4:	100	Test 4:	_____
Test 5:	100	Test 5:	_____
MML:	100	MML:	_____
Total:	500	My Total:	_____

Your Average = (Your Total) / 600
Final Average = 0.25*(Final Exam Score) + 0.75*(Your Average)

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

Withdrawal policy:
If you wish to drop the class, then it is your responsibility to do that before the final drop date. If your name is on the roll at the end of the term, you WILL receive a grade. Neither you nor your instructor will be able to perform the drop after the final drop date. Please refer to the following notice before dropping the class.

> NOTICE: Students who take a course three or more times will face significant tuition or fee increases at HCC and other Texas public colleges and universities. In addition, state law allows students a maximum of 6 course withdrawals during their entire college career. Students with more than 6 drops will be required to pay additional fees. Prior to course withdrawal, you must confer with your professor or counselor about your study habits, homework, test-taking skills, attendance, course participation, and tutoring or other assistance that is available.

Calculators:
Students will use a TI-83 graphing calculator during the semester and on some tests. The final exam is a non-calculator exam.

Student conduct:
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.

Electronic devices:
As a student active in the learning community of this course, it is your responsibility to be respectful of the learning atmosphere in the classroom. To show respect to your fellow classmates as well as your instructor, you will turn off your phone and any other electronic device and will not use these devices in the classroom unless you receive permission from the instructor.

Academic dishonesty:
All students are required to exercise academic honesty in completion of all tests and assignments. Penalties for academic dishonesty (cheating on a test, collusion on an assignment, etc.) include, but are not limited to, a reduced grade, a "0" on that test or assignment, a "W" in the course, or an "F" in the course. The use of recording devices, including camera phones and tape recorders, is prohibited in all locations where instruction, tutoring, or testing occurs. Students with disabilities who need to use a recording device as a reasonable accommodation should contact the Disability Services Office for information.

Resources and supplemental instruction:
Any student enrolled in Math 1314 at HCC has access to the tutoring labs where one-on-one help is available. The math tutoring labs are staffed with student assistants who can aid students with math problems and offer help with . Please check with your instructor for the hours of the tutoring labs. In addition, free online tutoring is provided. For more information about tutoring, go to the math department web page and select the tutoring link. Another helpful resource is the student solutions manual that may be obtained from the bookstore.

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 Support Services Office at this college at the beginning of the semester. To make an appointment, please call 713-718-7910. Professors are authorized to provide only the accommodations requested by the Disability Support Office.

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

1. Solve quadratic equations in one variable by factoring, using the square root property, completing the square, and using 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 problems involving variation.
15. Perform operations with matrices, and find the determinants of matrices.

GENERAL GRADING RUBRIC:
In free-response questions on a test, problems will be worth 3, 4 or 5 points. The rubric for grading is given below.

Meaning	**Out of 3**	**Out of 4**	**Out of 5**	
Superior	3	4	5	**Student shows understanding of the concept by:** • Having fewer than 2 minor errors • Providing a clear, logical and complete process • Providing evidence of checking and/or alternate representation • Using creative, appropriate strategies • Exceeding the minimum requirements of the task
Satisfactory		3	4	**Student shows understanding of the concept by:** • Having 2 to 3 minor errors, but correct process • Providing a logical and complete process but lacking clarity • Using appropriate strategies • Satisfying the requirements of the task
Satisfactory, With Minor Flaws	2	2	3	**Student shows understanding of the concept by:** • Using appropriate strategies • Showing work, but process haphazard • Writing an explanation that is mainly clear, but may show some gaps • Satisfying some elements of the task
Satisfactory, With Major Flaws	1	1	2	**Student shows rudimentary understanding of the concept by:** • Providing haphazard, illogical, or unclear work • Not checking work • Writing an explanation that did not connect to the problem or the solution • Answering only (without supporting work) • Satisfying few elements of the task
Unsatisfactory	0	0	0 – 1	**Student shows little or no understanding of the concept by:** • Attempting the problem, but no idea • Not using a recognizable process • Calculating incorrectly • Using inappropriate charts and graphs • Satisfying no elements of the task

Course Schedule (Topics will be covered in the order presented here)

Unit 1 - Equations and Inequalities

1.4 Quadratic Equations	1/21 (F), 1/24 (M)
1.5 Applications and Modeling with Quadratic Equations	1/26 (W)
R.5 Rational Expressions	1/26 (W)
1.6 Other Types of Equations	1/31 (M)
1.7 Inequalities	Independent Work
1.8 Absolute Value Equations and Inequalities	2/2 (W)
R.3 Review Rules of Exponents	2/4 (F)

Unit 2 - Graphs and Functions

2.1 Graphs of Equations	Independent Work
2.2 Functions	Independent Work
2.3 Linear Functions	Independent Work
2.4 Equations of Lines; Curve Fitting	Independent Work
2.5 Graphs of Basic Functions	2/7 (M)
2.6 Graphing Techniques	2/14 (M)
2.7 Function Operations and Composition	2/16 (W)
3.6 Variation	2/19 (F)
5.1 Systems of Linear Equations	Independent Work

Unit 3 - Polynomial and Rational Functions

3.1 Quadratic Functions and Models	2/21 (M)
3.2 Synthetic Division	2/23 (W)
3.3 Zeros of Polynomial Functions	3/2 (W)
3.4 Polynomial Functions: Graphs, Applications, and Models	3/7(M)
3.5 Rational Functions: Graphs, Applications, and Models	3/9 (W)

Unit 4 - Exponential and Logarithmic Functions

4.1 Inverse Functions	3/11 (F)
4.2 Exponential Functions	3/21 (M)
4.3 Logarithmic Functions	3/23 (W)
4.4 Evaluating Logarithms	3/28 (M)
4.5 Exponential and Logarithmic Equations	3/30 (W)
4.6 Applications & Models of Exponential Growth & Decay	4/1 (M), 4/6 (W)

Unit 5 - Systems and Matrices

5.5 Nonlinear Systems of Equations	4/11 (M)
5.3 Determinants	4/13 (W)
5.7 Properties of Matrices	4/18 (M)

Test Schedule:

Test	Units Covered on Test	Date
Test #1	Radicals and Complex Numbers	Monday, 1/19
Test #2	1.4, 1.5, 1.6, 1.7, 1.8, 2.1, 2.2, 2.3, 2.4, R.3, R.5	Wednesday, 2/9
Test #3	2.5, 2.6, 2.7, 3.1, 3.2, 3.6, 5.1	Monday, 2/28
Test #4	3.3, 3.4, 3.5, 4.1, 4.2, 4.3, 4.4	Monday, 4/4
Test #5	4.5, 4.6, 5.3, 5.5, 5.7	Monday, 5/2
Final Exam	Comprehensive	Wednesday, 5/11, 2 – 4 pm

Section Number	Due Date
1.4	01/31/11
1.5	01/31/11
1.6	02/07/11
1.7	02/07/11
1.8	02/07/11
2.1	02/08/11
2.2	02/08/11
2.3	02/08/11
2.4	02/08/11
2.5	02/21/11
2.6	02/21/11
2.7	02/21/11
3.6	02/27/11
5.1	02/27/11
3.1	02/27/11
3.2	02/27/11
3.3	03/07/11
3.4	03/21/11
3.5	03/21/11
4.1	03/21/11
4.2	03/28/11
4.3	03/28/11
4.4	04/03/11
4.5	04/05/11
4.6	04/08/11
5.3	04/18/11
5.5	04/18/11
5.7	04/21/11