MAC 1140 Precalculus/Algebra

COURSE SYLLABUS

General Information

Section Numbers: 38225
Meeting Times: 11:00 AM to 12:45 PM – Monday and Wednesday – (16 weeks)
Location: SMPF – 216
Credits: 3
Term: Spring 2013

Instructor Information

Instructor: Mr. Thomas Carty
Office: Adjunct Instructors’ Offices – Room 122 or 222
Office Hours: Monday and Wednesday:
9:00 AM to 9:30 AM
12:15 PM to 12:45 PM
3:40 PM to 4:20 PM
Telephone: (C) 215.534.5182
E-mail: tcarty2@hccfl.edu
Web page: http://www.hccfl.edu/faculty-info/tcarty2.ASPX
or
www.hccfl.edu→HCC Directory→Employee’s Last Name: “carty”→Click to Search→Homepage

Course Description

This course is primarily a conceptual study of polynomial, rational, and other algebraic functions, their properties and graphs; polynomial and rational inequalities; exponential and logarithmic functions, their properties and graphs; piecewise defined functions; conic sections; matrices and determinants; sequences and series; mathematical induction; binomial theorem; applications. The use of a graphing calculator is integrated throughout the course.

Prerequisites: MAC 1105 with a grade of “C” or better, or appropriate score on HCC placement test.

Course Objectives

1. POLYNOMIAL, RATIONAL, AND OTHER ALGEBRAIC FUNCTIONS
   a. Graph polynomial functions using key features (degree, zeros, multiplicity, leading coefficient, end behavior). Emphasize function behavior as \( x \rightarrow \pm \infty \).
b. Graph rational functions using key features: vertical, horizontal, and oblique asymptotes; holes, intercepts. Emphasize function behavior as \( x \to a \) a zero of the denominator, and as \( x \to \pm \infty \).

c. Construct and graph piece-wise defined functions.

d. Find the real and complex zeros of a polynomial function.

e. Solve inequalities involving polynomial and rational functions.

f. Apply mathematical models involving polynomial, rational functions, and piece-wise functions.

2. EXPONENTIAL AND LOGARITHMIC FUNCTIONS
   a. Evaluate and graph exponential and logarithmic functions.
   b. Solve exponential and logarithmic equations algebraically and graphically.
   c. Construct and apply mathematical models involving exponential and logarithmic functions.

3. CONIC SECTIONS
   a. Define circle, parabola, ellipse, and hyperbola; recognize their equations, their properties, and sketch their graphs.
   b. Solve applications involving conic sections.

4. SYSTEMS OF EQUATIONS AND INEQUALITIES, MATRICES, AND DETERMINANTS
   a. Use the algebra of matrices and evaluate determinants.
   b. Solve linear systems in 3 or 4 variables using matrices and Cramer’s rule.
   c. Solve systems of non-linear equations, including conic sections, algebraically and graphically.
   d. Solve applications using systems of equations.

5. MATHEMATICAL INDUCTION, SEQUENCES AND SERIES, THE BINOMIAL THEOREM
   a. Use summation notation to find the sum of any sequence.
   b. Identify arithmetic and geometric sequences. Determine the sum of the first \( n \) terms of arithmetic and geometric sequences and the sum of an infinite geometric series.
   c. Find and use recursive formulas to find terms.
   d. Apply the Binomial Theorem to expand powers of binomials; find the \( r^{th} \) term of a binomial expansion.
   e. Understand the use of mathematical induction in proving statements.

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**Course Materials**

**Text:** College Algebra, 9th Edition by Sullivan (printed or electronic version)

**General Information:** Students are required to use MyHCC and to check their HCC email for this course.

**Calculator:** Graphing calculators are permitted for this course. However, students will be expected to be able to solve problems without the use of a calculator.

**Worksheets:** All worksheets will be available from the web page for this course. Students are responsible for printing copies and bringing them to class. Copies will not be available in class.

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**Graded Assignments**

**Tests:** There will be four unit tests, plus the final exam. Of the four unit tests, the lowest grade will be dropped. If less than four unit tests are given due to unforeseen events, then the lowest grade will not be dropped.

If you are unable to attend class on the day of the test, please inform me through an email or text message prior to the test. I will submit a makeup copy to the Test Center and it is your responsibility to schedule a make-up date and time. For more information, please review the Make-Up Policy section of this syllabus.
Quizzes: The quizzes will be given at the end of the semester. The format is five 5-point quizzes presented by 25 multiple choice questions. It will be open notes/text and will cover the material from the semester. The two lowest quiz scores will be dropped.

Homework/Class work: For every section that we do in class, there will be homework problems assigned. The list of the homework problems is included in the document “Lesson Schedule and Homework Assignments.” This document can be viewed and copied from the web page.

There is a large number of homework problems listed for each section. To receive full homework credit, a minimum of 70% of the problems listed must be completed and problems from every subsection must be included.

Homework may be completed using pencil and paper or through the textbook publisher’s MathXL web site, www.mathxl.com., if the homework problems are sufficient from the web site. The procedure for setting up an account to use this resource is in the document, “How to Register and Enroll in Your MathXL Course.” (Can be viewed and copied from the web page.)

All homework assignments will be collected on the day of each test. The problems must be in order, neat, legible, and not stapled. Your name must be on every page of the assignment. All work must be shown in order to receive credit for each problem. The assignments must be ready to hand in at the beginning of the class. A 25% deduction in points may be assessed by the instructor for each homework assignment that is turned in late. The lowest homework grade of the four will be dropped.

**Paper torn out of a spiral notebook will not be accepted.**

If doing only the assigned problems is not enough to comfortably comprehend the topic, students are encouraged to do more than the assigned problems. Please ask for help when needed, in and out of class.

Final Exam: The final exam is cumulative and it cannot be made up.

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<th>Grading Procedures</th>
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<td>Calculation of Final Grade</td>
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<td>Tests: 60%</td>
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<td>Quizzes: 10%</td>
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<td>Homework: 10%</td>
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<th>Grading Scale</th>
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<tr>
<td>A 100% to 90%</td>
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<td>B 89% to 80%</td>
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<td>C 79% to 70%</td>
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<td>D 69% to 60%</td>
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<td>F 0% to 59%</td>
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Course Policies

Attendance Policy

Attendance will be taken for this course. Each student is required to sign the Attendance Sheet located at the front of the class. This is the record used to validate attendance matters. If you arrive late to class, be sure to sign the Attendance Sheet before leaving class. If you are unable to attend a class, you are required to email or text the instructor at the referenced email address on the front page of this syllabus.

- Students receiving financial aid are advised to discuss with a Financial Aid Advisor the impact of not attending class on their financial aid or veterans benefits.

Attending all classes and being on time are critical to your success. Copies of the Lesson Presentations will be available on the web page if you miss class or need to review the notes. However, there is no substitute for being in class to learn the material, to participate in class, and to be able to ask questions when they arise. Please commit to attending all classes.

Make-Up Policy

- All tests will be administered on the dates listed in the Lesson Schedule and Homework Assignments document, unless otherwise announced.
- Students are responsible for being present for all tests, quizzes, and examinations.
- Students who must miss a test because of an emergency, illness or religious observance, should inform the instructor in advance by email. A copy of the make-up test will be submitted to the Test Center (STPH – MOD 8). It is your responsibility to schedule an appointment for the make-up test by visiting the Test Center or by email, stestcenter@hccfl.edu (phone appointments are not acceptable). On the day of the make-up test, you will be required to sign in at the computer in the reception area and you must present a photo ID. Cell phones, personal listening equipment, etc. are not permitted in the testing area.
- Students who miss a test without notifying the instructor will receive a zero grade.
- It is highly recommended that you make up any missed test as soon as possible.
- By 8:00 PM on Thursday, May 2, 2013, all make-up tests and missing homework assignments must be submitted. A zero will be earned for all tests/assignments not received by that date.

Classroom Conduct Policy

Common courtesy, respect for others, and professionalism are expected behaviors from everyone.

Cell phones must be silenced and not out during the class. This includes texting.

Personal listening devices are not to be used during class.

If you are tired, please do not sleep in class. Stay home and get the required rest you need.

If you arrive late to class or need to leave early, please do so quietly.

Violation of any of the above policies will result in the student being asked to leave class for the evening.
Academic Dishonesty

Academic dishonesty includes the following actions, as well as other similar conduct aimed at making false representation with respect to the student's academic performance:

- Cheating on any assignment and/or assessment.
- Collaborating with others on assignments that are presented as your individual work. (This does not include group or collaborative assignments).
- Submitting, work previously submitted in another course, unless specifically approved by the instructor.
- Plagiarism-- Academic work, submitted by students is assumed to be the result of their own thought, research or self-expression. When students borrow ideas, wording or organization from another source they are expected to acknowledge that fact in the appropriate manner. Failure to do is considered plagiarism.
- Knowingly assisting another student in any of the above actions.

Academic Dishonesty is unacceptable in this class. It may result in actions ranging from a zero grade on a specific test or assignment to dismissal from class, academic program or from the college.

Important Dates and Withdrawal Policy

This course begins on Monday, January 7, 2013 and ends on Monday, May 6, 2013. The add/drop period for this course ends on Friday, January 11, 2013. The last day to withdraw from a College course with a "W" grade is Wednesday, March 13, 2013. It is the responsibility of the student to complete and submit the necessary forms to the Registrar's Office. An official withdrawal would entitle the student to a grade of "W" in the course. Students who do not withdraw by this date will receive the grade that they earned in the course.

Students who have received financial aid this semester should not drop or withdrawal from this class without first talking with an advisor in the financial aid department. Dropping or withdrawing may require you to repay the financial aid you received for this class, including all federal and state aid, both grants and loans. This is also true for Bright Futures and Pell Grant recipients.

HCC Educational Equity and Student Disability Policy

HCC is an equal access/equal opportunity institution that makes education-related decisions without regard to race, color, gender, religion, national origin, age, disability or marital status or any other bias that is or may be prohibited by law. In addition, the college does not discriminate in our admission and treatment of students. HCC is committed to equitable treatment of all students and to working towards a learning environment free of discrimination and harassment for current as well as future students. The college provides equal educational opportunities to qualified individuals with disabilities and complies with and fully supports the Americans with Disabilities Act of 1990.

On the SouthShore Campus, a student or prospective student, wishing academic accommodations, must self-identify and provide appropriate documentation of their disability. Students are encouraged to begin this process at least one month prior to the start of the semester. To request academic accommodations, please contact Student Services at 813-253-7000 ext. 5703.