



Independence

COMMUNITY COLLEGE

College Algebra Master Syllabus Fall 2017

I. On-Ground Course Information:

- **Course Title:** College Algebra, 3 credit hours, MWF 8:00-8:50 am.
- **Course Number:** 02-MAT-1023 -
- **KRSN Number:** MAT1010
- **Prerequisites:** ACT score 23 and above or an ACCUPLACER Elementary Algebra score of 81 or higher or a grade of C or higher in Intermediate Algebra.
- **Credit Hours:** 3
- **Required Textbook and Supplies:** *College Algebra*, Sixth Edition, by Robert Blitzer. Pearson, 2014. Available at the ICC Bookstore.
- **Recommended Texts and Supplies:**
- **Course Description:** This course is a survey of functions, theory of equations and inequalities, complex numbers, and exponential and logarithmic functions. High school geometry is a highly recommended preparatory course. Prerequisite: Appropriate ACT or COMPASS score, or a minimum grade of C in Intermediate Algebra ([DEV0334](#)) or a minimum grade of C in Beginning Algebra (DEV0314)

II. Learning Outcomes: Upon completion of this course, students will be able to do the following:

1. Simplify expressions and solve equations involving linear, rational, quadratic equations (by factoring, completing the square, and the quadratic formula), radicals, and absolute values; Solve linear and absolute value inequalities. This includes equations that have real and complex solutions and applications.
2. Show understanding of functions by identifying the differences between relations and functions, using function notation, finding the domain and range of function, combining functions, and finding composite and inverse functions.
3. Find the zeroes of a function; solve rational and polynomial inequalities; and model using variation.
4. Solve exponential and logarithm equations using properties of exponential and logarithmic functions; use exponential decay and growth to solve application problems.
5. Solve systems of equations by various methods, including matrices, and solve systems of inequalities by graphing.
6. Use concepts of symmetry, intercepts, left- and right-hand behavior, asymptotes, and transformations to sketch the graph of various types of functions (constant, linear, quadratic, absolute value, piecewise-defined, square root, cubic, polynomial, rational, exponential, and logarithmic) or relations (circle) given in description and use graphs of functions for analysis.

The learning outcomes and competencies detailed in this course outline or syllabus meet or exceed the learning outcomes and competencies specified by the Kansas Core Outcomes Groups project for this course as approved by the Kansas Board of Regents.

III. Grading Policy:

Grades will be calculated based upon the following scale unless licensing or accreditation boards have a higher standard:

100 – 90%	A
89 – 80%	B
79 – 70%	C
69 – 60%	D
Below 60%	F

<u>Coursework</u>	<u>% Of Final Grade</u>
Exams	60%
Final Exam	20%
<u>Homework</u>	<u>20%</u>
Total possible Points	100%

To receive a grade of "I" for Incomplete, students must complete at least 50% of the coursework, as well as a Request/ Approval for Incomplete Grade form. The student must also have a grade "C" or better on all coursework that has been turned in prior to the request for an incomplete.

IV Credit Description:

A credit hour is defined as one hour of classroom instruction and a minimum of two hours of out-of-class student work each week for approximately fifteen weeks for one semester of credit. So for every course credit hour, the typical student should expect to spend at least three clock hours per week of concentrated attention on course-related work, including but not limited to time attending class, as well as out-of-class time spent reading, reviewing, organizing notes, preparing for upcoming quizzes/exams, problem solving, developing and completing projects, and other activities that enhance learning. Thus, for a three hour course, a typical student should expect to spend at least nine hours per week dedicated to the course.

V. Common Learning Expectations: All sections of College Algebra will cover, at minimum, the following sections from College Algebra, 6e, by Robert F. Blitzer.

- 1.1 Graphs and Graphing Utilities
- 1.2 Linear Equations and Rational Equations
- 1.3 Models and Applications
- 1.4 Complex Numbers
- 1.5 Quadratic Equations
- 1.6 Other Types of Equations
- 1.7 Linear Inequalities and Absolute Value Inequalities
- 2.1 Basics of Functions and Their Graphs
- 2.2 More on Functions and Their Graphs
- 2.3 Linear Functions and Slope
- 2.4 More on Slope
- 2.5 Transformations of Functions
- 2.6 Combinations of Functions; Composite Functions

- 2.7 Inverse Functions
- 2.8 Distance and Midpoint Formulas; Circles
- 3.1 Quadratic Functions
- 3.2 Polynomial Functions and Their Graphs
- 3.3 Dividing Polynomials; Remainder and Factor Theorems
- 3.4 Zeros of Polynomial Functions
- 3.5 Rational Functions and Their Graphs
- 3.6 Polynomial and Rational Inequalities
- 3.7 Modeling Using Variation
- 4.1 Exponential Functions
- 4.2 Logarithmic Functions
- 4.3 Properties of Logarithms
- 4.4 Exponential and Logarithmic Equations
- 4.5 Exponential Growth and Decay; Modeling Data
- 5.1 Systems of Linear Equations in Two Variables
- 5.2 Systems of Linear Equations in Three Variables
- 6.1 Matrix Solutions to Linear Systems
- 6.2 Inconsistent and Dependent Systems and Their Applications
- (30 Total Lessons)