



North Iowa Area Community College Course Outline

Please follow the included instructions when completing this form. Direct questions to Division Chair. After Course Outline is completed, please submit to Division Chair for review, who then submits to Administrative Assistant to the Vice President for Academic Affairs for review by the Curriculum and Academic Affairs Council (CAAC).

Prepared by:	Kathy Rogotzke
Date Approved by CAAC:	September 9, 2019
Course Title:	College Algebra
Course Number:	MAT-121
Equivalent Prior Course Numbers:	MATH-121
Academic Division/Department:	Mathematics

Credits – Semester Hours (s.h.):

Contact Hours As defined by the Iowa Department of Education in consultation with Division Chair/Registrar (see attached instructions).

Lecture:	60	1 s.h. = 15 contact hours
Lab:	0	1 s.h. = 30 contact hours
Clinical Practice:	0	1 s.h. = 45 contact hours
Work Experience:	0	1 s.h. = 60, 75, 90, or 105 contact hours
Total:	60	

Prerequisite(s):

MAT-092 Intermediate Algebra with a C or better, or ALEKS score of at least 38

Corequisite(s):

None

Course Description:

This is a college-level course for students majoring in business, science, math and pre-engineering that satisfies the general education requirement in the Math/Science area. Its purpose is to prepare the student for trigonometry and eventually calculus. The course examines functions in an analytic-geometry setting, theories of equation-solving, matrices, the Fundamental Theorem of Algebra, and the Binomial Theorem. This course is considered preparation for calculus.

Required Textbook(s) and Other Required Materials:

College Algebra, 5th Edition, Hornsby, Lial, Rockswold, Addison Wesley
Graphing Calculator
MyMathLab (used by some instructors)

Purpose of Course Check one [X] in consultation with Division Chair.

☒	Arts and Sciences (General Education)
☐	Arts and Sciences
☐	Career and Technical (General Education)
☐	Career and Technical

☐ Developmental

If course is offered only in specific semesters, please explain below:

Maximum number of weeks for which the course is offered:

16

[Do not edit the following section. Managed by Academic Affairs]

Is this a Core Competency Anchor Course? YES ☐ NO ☐

If "Yes," list Core Competency Student Learning Outcome Numbers being taught and assessed in this course (2.2, 3.1, etc.)

(Example) 2.2 [Press Tab to create new rows for each SLO]

Student Learning Outcomes (SLOs):

Upon successful completion of the course, a student will be able to:

1. Apply the properties of complex numbers and classify complex numbers.
2. Locate real numbers on the number line and real coordinates on the Cartesian coordinate system.
3. Apply set-builder notation and interval notation for expressing solutions.
4. Define a relation and a function.
5. Express the domain and range of relations and functions.
6. Construct, interpret, and evaluate graphical representations of functions. In particular, using the methods of Intersection of Graphs and x-intercept.
7. Construct, interpret, and evaluate numerical representations of functions.
8. Construct, interpret, and evaluate algebraic representations of functions.
9. Construct and use sign diagrams.
10. Use the graphing calculator to obtain graphical and numerical representations of functions.
11. Interpret output of the graphical calculator.
12. Evaluate and use selected algebraic theorems, properties, and formulas with particular application to exponential, logarithmic, and polynomial functions.
13. Read and use logarithm notation including the base e.
14. Solve exponential and logarithmic equations.
15. Know the Fundamental Theorem of Algebra, and what it means.
16. Identify Algebraic Identities and Contradictions.
17. Describe the significance of linear slope for two lines to be parallel or perpendicular.
18. Apply the properties of shifting, stretching, shrinking, and reflecting graphs of functions.
19. Describe symmetries of 2-variable equations.
20. Solve equations and inequalities using algebraic, graphical, and numerical means.
21. Model real-data applications using technology and algebraic functions.
22. Solve problems involving applications of functions.
23. Solve systems of equations using multiple methods.
24. Use the properties of matrices to perform algebraic operations with matrices.
25. Find the determinants of matrices of varying dimension using technology and paper-and-pencil methods.
26. Solve Linear Programming problems.
27. Construct and evaluate sequences and series, including arithmetic and geometric sequences and series.
28. Expand or find individual terms in the expansion of a binomial using the Binomial Theorem.