

SEWARD COUNTY COMMUNITY COLLEGE COURSE SYLLABUS

I. TITLE OF COURSE: MA0052- College Algebra Plus

II. COURSE DESCRIPTION: 2 credit hours **credit hours**

2 credit hours of lecture **credit hours of lecture** and 0 credit hours of lab per week **credit hours of lab per week**.

This course is a co-requisite of MA 1173 for those students assessed at a level below college-level algebra. This course emphasizes active learning, critical thinking skills, and algebra skills needed to be successful in MA 1173. This course will not count for graduation.

For each unit of credit, a minimum of three hours per week with one of the hours for class and two hours for studying/preparation outside of class is expected.

Pre-requisite: Determined by instructor.

III. PROGRAM AND/OR DEPARTMENT MISSION STATEMENT:

The Mathematics Department at Seward County Community College will enhance a student's ability to think critically using mathematical principles, ideas, and concepts in order to function in a society with ever-changing technology.

IV. TEXTBOOK AND MATERIALS:

1. Bittinger, Beecher, Ellenbogen, and Penna. College Algebra: Graphs and Models, 6th Edition, Pearson/Addison Wesley, 2017.
2. Bittinger, Beecher, Ellenbogen, and Penna. College Algebra: Graphs and Models Student Solutions Manual , Addison Wesley Longman Inc.,
3. Texas Instruments 83, 83 Plus, 84 or 84 Plus Graphing Calculator

V. SCCC OUTCOMES

Students who successfully complete this course will demonstrate the ability to do the following SCCC Outcomes.

- 4: Demonstrate mathematical skills using a variety of techniques and technologies.
- 5: Demonstrate the ability to think critically by gathering facts, generating insights, analyzing data, and evaluating information

VI. COURSE OUTCOMES:

Analysis and Graphing of Functions and Equations

1. Use functional notation, including finding arithmetic combinations and compositions of functions.
2. Recognize and distinguish between functions and relations (equations).
3. 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.
4. Determine the domain and range of a function.
5. Write the equation that describes a function (for types given above) or circle given its description.
6. Use graphs of functions for analysis.
7. Find the inverse of a function.

Solutions of Equations and Inequalities

8. Solve equations including literal equations, linear equations, quadratic equations by factoring and the quadratic formula, higher-order polynomial equations, equations involving rational expressions, equations involving radicals, equations involving absolute value expressions, along with equations involving exponential or logarithmic functions.
9. Solve inequalities of the following types: linear (in one and two variables), polynomial, rational, absolute value.
10. Solve systems of inequalities by graphing.
11. Apply equations from the first bullet in this core outcome to real-world situations, including but not limited to depreciation, growth and decay, and max/min problems.
12. Examine and analyze data, make predictions/interpretations, and do basic modeling.
13. Solve systems of equations by various methods, including matrices.

VII. COURSE OUTLINE:

1. Linear functions: graphing, finding solutions, writing equations
2. Solving linear equation and inequalities
3. Domain and Range of various functions using interval notation
4. Transformations of functions
5. Using technology to graph functions
6. Graph piecewise functions
7. Complex numbers
8. Solving quadratic equations by factoring, completing the square, quadratic formula and square root method.
9. Solving rational and radical equations
10. Solving absolute equations and inequalities
11. Long and synthetic division of polynomials
12. Factoring polynomials
13. Simplifying rational expressions
14. Graphing polynomial and rational functions
15. Composition of functions
16. Properties of exponents
17. Graphical analysis of systems of linear equations and inequalities
18. Applications of systems of linear equations

VIII. INSTRUCTIONAL METHODS:

1. Lecture/Discussion
2. Written assignments
3. Calculator and/or computer exercises
4. Whiteboard drills
5. Calculator demonstrations
6. Quizzes
7. Individual help

IX. INSTRUCTIONAL AND RESOURCE MATERIALS:

1. Textbook
2. Library mathematics reference books
3. Supplementary materials prepared by the instructor
4. Computer tutorial programs
5. Computer projector and laptop computer used for computer demonstrations
6. Graphing calculator

X. METHODS OF ASSESSMENT:

Methods of assessing the general course outcomes and the specific course competencies include tests, daily quizzes, and class attendance.

SCCC Outcome #4 will be assessed and measured by quizzes and use of a graphing calculator.
SCCC

Outcome #5 will be assessed and measured using assignments and nontraditional problem solving activities.

XI. ADA STATEMENT:

Under the Americans with Disabilities Act, Seward County Community College will make reasonable accommodations for students with documented disabilities. If you need support or assistance because of a disability, you may be eligible for academic accommodations. Students should identify themselves to the Dean of Students at 620-417-1106 or go to the Student Success Center in the Hobbie Academic building, room A149.

Syllabus Reviewed: 05/18/22