

COURSE SYLLABUS

LAST REVIEW	Spring 2021
COURSE TITLE	Elementary Algebra
COURSE NUMBER	MATH 0099
DIVISION	Math, Science, Business & Technology
DEPARTMENT	Mathematics
CIP CODE	24.0101
CREDIT HOURS	3
CONTACT HOURS/WEEK	Class: 3

PREREQUISITES MATH0097 Math Essentials with a grade of "C" or better.

COURSE PLACEMENT Students must meet the correct placement measure for this course. Information may be found at:
<https://www.kckcc.edu/admissions/information/mandatory-evaluation-placement.html>

COURSE DESCRIPTION

Elementary Algebra is an introductory course for students who have a solid foundation in arithmetic. Topics studied will include operations with signed numbers, linear equations and inequalities, problem solving, graphs of linear equations, operations with polynomials, factoring, quadratic equations, rational expressions, and radical expressions. Students will be expected to use appropriate technology as one tool to achieve competency in Elementary Algebra.

General Education Learning Outcome

- Basic Skills for Communication
- Mathematics
- Humanities
- Natural and Physical Sciences
- Social and Behavioral Sciences

Institutional Learning Outcomes

- Communication
- Computation and Financial Literacy
- Critical Reasoning
- Technology and Information Literacy
- Community and Civic Responsibility

Personal and Interpersonal Skills

TEXTBOOKS

<http://kckccbookstore.com/>

METHODS OF INSTRUCTION

A variety of instructional methods may be used depending on content area. These include but are not limited to: lecture, multimedia, cooperative/collaborative learning, labs and demonstrations, projects and presentations, speeches, debates, panels, conferencing, performances, and learning experiences outside the classroom. Methodology will be selected to best meet student needs.

COURSE OUTLINE

- I. Arithmetic and Algebraic Manipulation
 - A. Arithmetic expressions
 - B. Algebraic expressions
 - C. Exponential expressions
 - D. Scientific notation
 - E. Polynomial expressions
 - F. Factoring
 - G. Rational expressions
 - H. Radicals
 1. Evaluation
 2. Simplification
- II. Equations and Inequalities
 - A. Linear equations
 - B. Proportional equations
 - C. Linear inequalities
 - D. Literal equations
 - E. Quadratic equations
 - F. Mathematical models
- III. Linear Graphs on a Coordinate Plane
 - A. Plotting points
 - B. Table of values
 - C. Intercepts
 - D. Y-intercept and slope
- IV. Analysis of Linear Equations and Graphs
 - A. Identification of slope and intercepts given its graph
 - B. Identification of slope and intercepts given its equation
 - C. Equations of Lines
 1. Determination based on graph
 2. Determination based on slope and y-intercept
 3. Determination based on slope and a point on the line
 - D. Equations of horizontal and vertical lines

- E. Identification of Linear Equations
- F. Slope of a Line

COURSE LEARNING OUTCOMES AND COMPETENCIES

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

- A. Perform arithmetic and algebraic manipulations.
 - 1. evaluate arithmetic expressions (including absolute values) using the order of operations and properties of real numbers.
 - 2. evaluate and simplify algebraic expressions.
 - 3. apply the laws of exponents to simplify expressions containing integer exponents.
 - 4. express numbers in scientific notation.
 - 5. perform addition, subtraction, multiplication, and division on polynomial expressions.
 - 6. factor expressions with common factors, expressions that require grouping, trinomial expressions, and differences of squares.
 - 7. perform addition, subtraction, multiplication, and division on rational expressions.
 - 8. evaluate radicals, approximating those that are irrational.
 - 9. simplify numeric radicals using the product and quotient rules.
- B. Solve equations and inequalities.
 - 10. solve linear equations in one variable.
 - 11. solve proportional equations.
 - 12. solve linear inequalities in one variable showing solutions on the real number line.
 - 13. solve literal equations that do not require factoring.
 - 14. solve quadratic equations by factoring.
 - 15. develop and solve mathematical models including number, geometry and percent applications.
- C. Graph linear equations on a coordinate plane.
 - 16. plot points on a coordinate plane.
 - 17. graph linear equations by plotting points (table of values).
 - 18. graph linear equations using intercepts.
 - 19. graph linear equations using the y-intercept and slope.
- D. Analyze equations and graphs.
 - 20. identify the x-intercept, y-intercept, and slope of the line given its graph.
 - 21. identify the x-intercept, y-intercept, and slope of the line given its equation.
 - 22. determine the equation of a line given its graph, given its slope and y-intercept, and given its slope and a point on the line.
 - 23. determine equations of both horizontal and vertical lines.
 - 24. determine whether or not an equation is linear.
 - 25. calculate the slope of a line passing through two given points.

ASSESSMENT OF COURSE LEARNING OUTCOMES AND COMPETENCIES

Student progress is evaluated through both formative and summative assessment methods. Specific details may be found in the instructor's course information document.

COLLEGE POLICIES AND PROCEDURES

Student Handbook

<https://www.kckcc.edu/files/docs/student-resources/student-handbook-and-code-of-conduct.pdf>

College Catalog

<https://www.kckcc.edu/academics/catalog/index.html>

College Policies and Statements

<https://www.kckcc.edu/about/policies-statements/index.html>

Accessibility and Accommodations

<https://www.kckcc.edu/academics/resources/student-accessibility-support-services/index.html>.