COURSE SYLLABUS

LAST REVIEW	Fall 2021
COURSE TITLE	Intermediate Algebra
COURSE NUMBER	MATH 0104
DIVISION	Math, Science, Business & Technology
DEPARTMENT	Mathematics
CIP CODE	C24.0101
CREDIT HOURS	3
CONTACT HOURS/WEEK	Class: 3
PREREQUISITES	MATH0099 Elementary Algebra 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

Intermediate Algebra includes a brief review of Elementary Algebra: linear functions and graphs, rational expressions and equations, radical expressions and complex numbers, and quadratic equations and graphs. Students will be expected to use appropriate technology as one tool to achieve competency in Intermediate 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. Quadratics
  B. Rational expressions
  C. Complex fractions
  D. Rational exponents
  E. Radicals
  F. Complex numbers
  G. Functions

II. Equations and Inequalities
  A. Linear inequalities
  B. Literal equations
  C. Systems of linear equations
  D. Quadratic equations
  E. Rational equations
  F. Radical equations
  G. Absolute value equations & inequalities
  H. Mathematical models
    l. Variation
    2. Mixture
    3. Motion
    4. Work
    5. Geometry

III. Graphs on a Coordinate Plane
  A. Linear inequalities
  B. Quadratic functions

IV. Analysis of Equations and Graphs
  A. Equation of a line
    1. Through two points
    2. Given particular conditions
  B. Distance between two points
  C. Functions and non-functions
    1. Vertical line test

2. Domain and range

COURSE LEARNING OUTCOMES AND COMPETENCIES
Upon successful completion of this course, the student will:
A. The student will demonstrate the ability to perform arithmetic and algebraic manipulation by:
1. Factoring expressions completely using various techniques.
2. Performing addition, subtraction, multiplication, and division on rational expressions.
3. Simplifying complex fractions.
4. Applying the laws of exponents to simplify expressions containing rational exponents.
5. Applying the laws of radicals to perform addition, subtraction, and multiplication on expressions involving radicals and rationalizing denominators containing radicals.
6. Simplifying radicals containing negative radicands and performing arithmetic operations on complex numbers.
7. Evaluating functions using function notation.

B. The student will be able to solve equations and inequalities
8. Solve linear equations with one variable.
9. Solve linear inequalities in one variable showing solutions both on the real number line, in interval notation, and in set-builder notation.
10. Solve literal equations.
11. Solve systems of linear equations in two variables.
12. Solve equations by factoring and quadratic formula.
13. Solve equations containing rational expressions.
14. Solve equations involving radicals.
15. Develop and solve mathematical models such as variation, mixture, motion, work, and geometrical applications.

C. The student will be able to produce graphs on a coordinate plane by:
16. Graphing linear equations and inequalities.
17. Graphing functions, including linear and quadratic.

D. The student will be able to analyze equations and graphs to:
18. Determine an equation of a line given sufficient information such as point and slope, two points, point and a perpendicular/parallel line.
19. Calculate the distance between two points.
20. Distinguish between functions and relations using the Vertical Line Test.
21. Identify the domain and range of a function

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.