COURSE SYLLABUS

LAST REVIEW   Spring 2021

COURSE TITLE   College Algebra

COURSE NUMBER   MATH 0106

DIVISION   Math, Science, Business & Technology

DEPARTMENT   Mathematics

CIP CODE   24.0101

CREDIT HOURS   3

CONTACT HOURS/WEEK   Class: 3

PREREQUISITES   MATH0104 Intermediate Algebra with a grade of "C" or higher.

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
College Algebra includes analysis and graphing of functions, including constant, linear, absolute value, square root, polynomial, rational, exponential and logarithmic functions and non-functions; and solving equations and inequalities, including polynomial equations, exponential equations, logarithmic equations, and systems of linear equations and inequalities. Students will be expected to use appropriate technology as one tool to achieve competency in College Algebra.

KANSAS SYSTEMWIDE TRANSFER: MAT1010
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.

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.   Functions and Non-functions
        A. Function Notation
        B. Equations
        C. Graphs
             1. Constant, Linear
             2. Absolute Value, Piecewise
             3. Quadratic, Square Root
             4. Cubic, Other Polynomial
             5. Rational
             6. Exponential, Logarithmic
        D. Domain and Range
        E. Equations
             1. Constant, Linear
             2. Absolute Value, Piecewise
             3. Quadratic, Square Root
             4. Cubic, Other Polynomial
             5. Rational
             6. Exponential, Logarithmic
        F. Graphs
        G. Combinations and Composition of Functions
        H. Inverses

    II.   Equations and Inequalities
        I. Equations
             1. Constant, Linear
             2. Absolute Value, Piecewise
             3. Quadratic, Square Root
             4. Cubic, Other Polynomial

5. Rational
6. Exponential, Logarithmic

J. Inequalities
7. Linear
8. Polynomial
9. Rational
10. Absolute Value

K. Systems of Inequalities
L. Applications of Equations
M. Data Analysis
N. Systems of Equations

COURSE LEARNING OUTCOMES AND COMPETENCIES
Upon successful completion of this course, the student will:

A. be able to analyze and graph functions and equations.
1. use functional notation.
2. recognize and distinguish between functions and relations (equations).
3. use the 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 arithmetic combinations and composites of functions.
8. find the inverse of a function.

B. be able to find solutions of equations and inequalities.
9. solve literal equations; quadratic equations by factoring and the quadratic formula; equations involving rational expressions, radicals, absolute value expressions, and exponential or logarithmic functions.
10. solve inequalities of the following types: linear (in one and two variables), polynomial, rational, absolute value.
11. solve systems of inequalities by graphing.
12. apply equations listed above to real-world situations, including but not limited to depreciation, growth and decay, and max/min problems.
13. examine and analyze data, make predictions/interpretations, and do basic modeling.
14. solve systems of equations by various methods, including matrices.

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.