SYLLABUS

DATE OF LAST REVIEW: 01/2014
CIP CODE: 24.0101
SEMESTER: Departmental Syllabus
COURSE TITLE: College Algebra
COURSE NUMBER: MATH0105
CREDIT HOURS: 5
INSTRUCTOR: Departmental Syllabus
OFFICE LOCATION: Departmental Syllabus
OFFICE HOURS: Departmental Syllabus
TELEPHONE: Departmental Syllabus
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KCKCC-issued email accounts are the official means for electronically communicating with our students.

PREREQUISITES: First Time Placement: See Mandatory Placement Guidelines. Grade of “C” or higher in MATH0104 Intermediate Algebra.

REQUIRED TEXT AND MATERIALS: Please check with the KCKCC bookstore, http://www.kckccbookstore.com for the required text for your particular class. TI-83 or 84 Series graphing calculator is required.

COURSE DESCRIPTION: College Algebra includes a brief review of Intermediate Algebra; 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.

METHOD 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, and panels, conferencing, performances, and learning experiences outside the classroom. Methodology will be selected to best meet student needs.
CORE OUTCOMES MISSION STATEMENT: The Core Outcomes Project is an academic initiative of the Kansas Board of Regents that brings together faculty for the purpose of developing core outcomes and competencies for general education courses from the state’s universities, community colleges, and technical colleges. Common core outcomes and competencies contribute to the state’s system of higher education by creating a seamless pathway for students by improving articulation and transfer between state institutions, facilitating communication within disciplines among the state’s faculty, and communicating to the state’s secondary schools the expectations of college-level curriculum that could result in improvements in college preparedness of students.

CORE OUTCOMES SYLLABI: The learning outcomes and competencies detailed in this syllabus meet or exceed the learning outcomes and competencies specified by the Kansas Core Outcomes Project for this course, as sanctioned by the Kansas Board of Regents.

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
      7. Conic sections
   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
      7. Conic sections
   F. Graphs
   G. Combinations and Composition of Functions
   H. Inverses

II. Equations and Inequalities
   A. Equations
      1. Constant, Linear
      2. Absolute Value, Piecewise
      3. Quadratic, Square Root
      4. Cubic, Other Polynomial
5. Rational
6. Exponential, Logarithmic
7. Conic sections

I. Inequalities
   1. Linear
   2. Polynomial
   3. Rational
   4. Absolute Value

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

EXPECTED LEARNER OUTCOMES:

A. The student will be able to analyze and graph functions and non-functions.
B. The student will be able to find solutions of equations and inequalities.

COURSE COMPETENCIES:
Upon successful completion of this course:

*The student will be able to analyze and graph functions and non-functions.*

1. The student will be able to use function notation.
2. The student will be able to recognize equations of functions and non-functions.
3. The student will be able to use the appropriate concepts to sketch the graphs of constant and linear functions given their description.
4. The student will be able to use the appropriate concepts to sketch the graphs of absolute value and piecewise functions given their description.
5. The student will be able to use the appropriate concepts to sketch the graphs of quadratic and square root functions given their description.
6. The student will be able to use the appropriate concepts to sketch the graphs of cubic and other polynomial functions given their description.
7. The student will be able to use the appropriate concepts to sketch the graphs of rational functions given their description.
8. The student will be able to use the appropriate concepts to sketch the graphs of exponential and logarithmic functions given their description.
9. The student will be able to use the appropriate concepts to sketch the graph of circles (non-functions) given their description.
10. The student will be able to determine the domain and range of a function.
11. The student will be able to write the equations of constant and linear functions given their description.
12. The student will be able to write the equations of absolute value and piecewise functions given their description.
13. The student will be able to write the equations of quadratic and square root functions given their description.
14. The student will be able to write the equations of cubic and other polynomial functions given their description.
15. The student will be able to write the equations of rational functions given their description.
16. The student will be able to write the equations of exponential and logarithmic functions given their description.
17. The student will be able to write the equations of circles (non-functions) given their description.
18. The student will be able to use graphs of functions for analysis.
19. The student will be able to find combinations and composition of functions.
20. The student will be able to find inverses of functions.

The student will be able to find solutions of equations and inequalities.
21. The student will be able to solve constant and linear equations.
22. The student will be able to solve absolute value and piecewise equations.
23. The student will be able to solve quadratic and square root equations.
24. The student will be able to solve cubic and other polynomial equations.
25. The student will be able to solve rational equations.
26. The student will be able to solve exponential and logarithmic equations.
27. The student will be able to solve equations of circles.
28. The student will be able to solve linear inequalities.
29. The student will be able to solve polynomial inequalities.
30. The student will be able to solve rational inequalities.
31. The student will be able to solve absolute value inequalities.
32. The student will be able to solve systems of inequalities by graphing.
33. The student will be able to apply equations (for example: growth and decay, depreciation, trajectory).
34. The student will be able to examine and analyze data, make predictions and/or interpretations, and do modeling.
35. The student will be able to solve systems of equations using various methods, including matrices.
36. The student will be able to identify and write the standard equation of conic sections and generate the corresponding graphs.

ASSESSMENT OF STUDENT OUTCOMES:
Student progress is evaluated by means that include, but are not limited to, exams, written assignments, and class participation.

SPECIAL NOTES:
Material included is intended to provide an outline of the course and rules that the instructor will adhere to in evaluating the student’s progress. However, this syllabus is not intended to be a legal contract. Questions regarding the syllabus are welcome any time.
Kansas City Kansas Community College is committed to an appreciation of diversity with respect for the differences among the diverse groups comprising our students, faculty, and staff that is free of bigotry and discrimination. Kansas City Kansas Community College is committed to providing a multicultural education and environment that reflects and respects diversity and that seeks to increase understanding.

Kansas City Kansas Community College offers equal educational opportunity to all students as well as serving as an equal opportunity employer for all personnel. Various laws, including Title IX of the Educational Amendments of 1972, require the college’s policy on non-discrimination be administered without regard to race, color, age, sex, religion, national origin, physical handicap, or veteran status and that such policy be made known.

Kansas City Kansas Community College complies with the Americans with Disabilities Act. If you need accommodations due to a documented disability, please contact the Director of the Academic Resource Center, in Room 3354 or call: 913-288-7670.