MATH 106 - College Algebra Course Outline

Approval Date: 12/13/2018
Effective Date: 08/12/2019

SECTION A

Unique ID Number	CCC000601128
Discipline(s)	Mathematics
Division	Mathematics
Subject Area	Mathematics
Subject Code	MATH
Course Number	106
Course Title	College Algebra
TOP Code/SAM Code	1701.00 - Mathematics, General / E - Non-Occupational
Rationale for adding this course to the curriculum	We are adjusting the units to better reflect the needs of this class, and making adjustments to our SLOs as per our

General Education Information:

SECTION C

Course Description

Repeatability May be repeated 0 times

Catalog This course provides a strong algebraic foundation for the study of Calculus.
Description From numerical, graphing, and analytical views, the course studies functions, including: polynomial, rational, exponential and logarithmic. Series, sequences and conic sections are also included. A graphing calculator is required.

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SECTION D

Condition on Enrollment

1a. Prerequisite(s)

MATH 95 with a minimum grade of C or better or
Appropriate Placement

1b. Corequisite(s): *None*

1c. Recommended: *None*

1d. Limitation on Enrollment: *None*

SECTION E

Course Outline Information

1. Student Learning Outcomes:

A. Graph polynomial, rational, radical, exponential, logarithmic and conic equations by hand.
B. Solve polynomial, exponential, logarithmic, systems of equations and inequalities.

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A. Functions including linear, polynomial, rational, radical, exponential, absolute value, logarthimic: definitions, evaluation, domain and range;
B. Inverses of functions;
C. Algebra of functions;
D. Graphs of functions including asymptotic behavior, intercepts and vertiecies;
E. Transformations of quadratic, absolute value, radical, rational, logarithmic and exponential functions;
F. Equations including rational, linear, polynomial, radical exponential, absolute value and logartihmic;
G. Linear, nonlinear and absolute value inequalities;
H. Systems of equations (with matricies) and inequalities;
I. Partial fraction decomposition;
J. Characterization of the zeros of polynomials;
K. Properties and applications of Complex numbers;
L. Properties of conic sections;
M. Sequences and series including arithmetic, geometric, recursive, subscript notation and sigma notation;
N. Introduction to limit notation and continuity via polynomial and rational functions.
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4. Methods of Instruction:
Activity:
Discussion:
Lecture:
Observation and Demonstration:
Projects:

5. Methods of Evaluation: Describe the general types of evaluations for this course and provide at least two, specific examples.

Typical classroom assessment techniques
Exams/Tests --
Quizzes --
Oral Presentation --
Projects --
Home Work --
Final Exam --
Mid Term --

Additional assessment information:

The Mathematics Department maintains a commitment to diverse teaching methods in courses emphasizing vital quantitative skills and qualitative reasoning ability (PEP Program Mission Statement, 2011). To that end, it is expected that sufficient formative assessments will be given to students that in frequency, length and rigor adequately assess both quantitative skills and qualitative reasoning.

Sample assessment questions follow:
1 - For the function $f(x) = 2x^3 - 3x^2 - 11x + 6$; Use the Rational Zero Theorem to find all the zeros.

2 - Find the vertical asymptotes, if any, and the values of x corresponding to holes, if any, of the rational function $f(x)= (x + 7)/(x^2 + 4x - 21)$

Letter Grade Only

6. Assignments: State the general types of assignments for this course under the following categories and provide at least two specific examples for each section.

    A. Reading Assignments

        Read sections from the textbook, for example:

        1. Read section 2.5 on Transformations of Functions. Be ready to discuss and work on graphing activities in class.

        2. Read section 7.1 on The Ellipse. Be ready to discuss and work on graphing activities in class.

    B. Writing Assignments

        Students will solve text problems regarding College Algebra, for example:

        1. Complete exercises 1 - 15 odd from section 3.3 on dividing polynomials.

        2. Find all requested information and graph the indicated rational functions in exercises 21 - 56 odd from section 3.5 on rational functions and their graphs.

    C. Other Assignments

    D.

7. Required Materials

    A. EXAMPLES of typical college-level textboof3nod omdis r