COURSE OUTLINE OF RECORD

Number: MATH G115  TITLE: College Algebra

ORIGINATOR: Gary Kirby Jr.  EFF TERM: Spring 2019
FORMERLY KNOWN AS:  DATE OF OUTLINE/REVIEW: 12-04-2018
CROSS LISTED COURSE:  TOP NO: 1701.00

SEMESTER UNITS: 4.0
HRS LEC: 72.0  HRS LAB: 0.0  HRS OTHER: 0.0
CONTACT HRS TOTAL: 72.0
STUDY NON-CONTACT HRS RECOMMENDED: 144.0

CATALOG DESCRIPTION:
This course is designed for students planning to enroll in MATH G140, G150, or G160. Topics include matrices and determinants, theory of equations and systems, graphing equations and functions, logarithmic and exponential functions and their graphs, polynomial and rational functions, conics sections, sequences and series, counting and probability. A scientific calculator is recommended.

JUSTIFICATION FOR COURSE:

PREREQUISITES:
- GWC Math Placement Level of 50 or higher.
- MATH G030: Intermediate Algebra with a minimum grade of C or better
- OCC Math Placement Level of 50 or higher.
- MATH A030: Intermediate Algebra with a minimum grade of C or better
- CCC Math Placement Level of 70 or higher.
- MATH C030: Intermediate Algebra with a minimum grade of C or better
- MATH G040: Accelerated Elementary and Intermediate Algebra with a minimum grade of C or better

COREQUISITES:

ADVISORIES:

ASSIGNED DISCIPLINES:
Mathematics

MATERIAL FEE: Yes [ ] No [X] Amount: $0.00
CREDIT STATUS: Noncredit [ ] Credit - Degree Applicable [X] Credit - Not Degree Applicable [ ]
GRADING POLICY: Pass/No Pass [ ] Standard Letter [X] Not Graded [ ] Satisfactory Progress [ ]
OPEN ENTRY/OPEN EXIT: Yes [ ] No [X]
TRANSFER STATUS: CSU Transferable[ ] UC/CSU Transferable[X] Not Transferable[ ]
BASIC SKILLS STATUS: Yes [ ] No [X] LEVELS BELOW TRANSFER: Not Applicable
CALIFORNIA CLASSIFICATION CODES: Y - Not Applicable
NON CREDIT COURSE CATEGORY: Y - Not applicable, Credit Course
OCCUPATIONAL (SAM) CODE: E
REPEATABLE ACCORDING TO STATE GUIDELINES: No [X] Yes [ ] NUMBER REPEATS:
REQUIRED FOR DEGREE OR CERTIFICATE: No [ ] Yes [X]
Liberal Arts: Emphasis in Mathematics(Associate in Arts)
Liberal Arts: Emphasis in Science(Associate in Arts)

GE AND TRANSFER REQUIREMENTS MET:
IGETC Area 2: Mathematical Concepts and Quantitative Reasoning
   2A: Mathematics
CSU GE Area B: Scientific Inquiry and Quantitative Reasoning
   B4 - Mathematics/Quantitative Thinking

COURSE LEVEL STUDENT LEARNING OUTCOME(S) Supported by this course:

1. List the potential rational zeros of a polynomial function.
2. Determine the equation of the function that results from transformations applied to the graph of a given function.
3. Solve a system of nonlinear equations.
4. Solve logarithmic and exponential equations.
5. Find the center, transverse axis, vertices, foci, and asymptotes of a hyperbola, and graph the hyperbola.

COURSE OBJECTIVES:
2. Demonstrate algebraic techniques associated with equations and inequalities.
3. Graph equations and functions, polynomial and rational functions, exponential and logarithmic functions, and conic sections.
4. Solve systems of equations and inequalities.
5. Find limits of sequences and series.

COURSE CONTENT:

LECTURE CONTENT:

A. Equations and inequalities
   1. Linear equations
   2. Quadratic equations
   3. Inequalities
   4. Equations and inequalities involving absolute values

B. Graphs
   1. Graphs of equations
   2. Circles
   3. Lines

C. Functions and their graphs
   1. Functions
   2. Graphs of functions
   3. Properties of functions
   4. Library of functions and piecewise-defined functions
   5. Graphing transformations

D. Polynomial and rational functions
   1. Polynomial functions and their graphs
   2. Rational functions and their graphs
   3. Polynomial and rational inequalities
4. Zeros of a polynomial
E. Exponential and logarithmic functions
   1. Composite functions
   2. Inverse functions
   3. Exponential functions
   4. Logarithmic functions
   5. Solving of exponential and logarithmic equations

F. Conic sections
   1. The parabola
   2. The ellipse
   3. The hyperbola

G. Systems of equations and inequalities
   1. Substitution and elimination
   2. Matrices
   3. Determinants
   4. Matrix algebra
   5. Partial fraction decomposition
   6. Systems of nonlinear equations
   7. Systems of inequalities

H. Sequences, series and the Binomial Theorem
   1. Arithmetic sequences and series
   2. Geometric sequences and series
   3. The Binomial Theorem

I. Counting and probability
   1. Sets and counting
   2. Probability

METHODS OF INSTRUCTION:
A. Lecture:
B. Tutoring – noncredit:
C. Dist. Ed – Delayed Interaction:
D. Online:
E. Independent Study:
F. Hybrid:

INSTRUCTIONAL TECHNIQUES:

COURSE ASSIGNMENTS:
Reading Assignments
   Text
   Websites

   Out-of-class Assignments

Writing Assignments
   Homework, quizzes, and examinations covering topics presented in the course.

METHODS OF STUDENT EVALUATION:
Midterm Exam
Final Exam
Short Quizzes
Written Assignments
Essay Examinations
Objective Examinations
Report
Projects (ind/group)
Problem Solving Exercises
Oral Presentations
Skills Demonstration

**Demonstration of Critical Thinking:**
Analysis and application of mathematical techniques presented in the course; mathematical modeling and computational methods.

**Required Writing, Problem Solving, Skills Demonstration:**
Homework, quizzes, and examinations covering topics presented in the course.

**TEXTS, READINGS, AND RESOURCES:**

**TextBooks:**

**LIBRARY:**
Adequate library resources include:

**Comments:**

**Attachments:**
[Attached Files]