CLOUD COUNTY COMMUNITY COLLEGE

Our Mission: Cloud County Community College prepares students to lead successful lives and enhances the vitality of our communities.

**GENERAL INFORMATION**

**Course Number and Title:** MA 111 College Algebra

**Term and Year:**Academic Year 2022-2023

**Credit Hours**: 3

**Course Description**: This course reviews standard topics of algebra. Students will study linear and quadratic equations, functional notation, linear, quadratic, rational, logarithmic and exponential functions, systems of equations and inequalities, and matrix algebra. Other topics may be covered at the instructor’s discretion. Prerequisite: appropriate test scores or Intermediate Algebra with a grade of C or better.

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****Division:**** Mathematics, Science, and Technical Programs
**Department:** Mathematics and Engineering

**STUDENT LEARNING OUTCOMES AND ASSESSMENT**

**Course Learning Outcomes**

For this course, students are expected to demonstrate the skills associated with the course learning goals as described by the student learning outcomes below:

Analysis and Graphing of Functions and Equations

1. Use functional notation, including finding arithmetic combinations and compositions of functions.

2. Recognize and distinguish between functions and relations (equations).

3. Use 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 relations and functions.

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 the inverse of a function.

Solutions of Equations and Inequalities

1. Solve equations including literal equations, linear equations, quadratic equations by factoring and the quadratic formula, higher‐order polynomial equations, equations involving rational expressions, equations involving radicals, and equations involving absolute value expressions, along with equations involving exponential or logarithmic functions.

2. Solve inequalities of the following types: linear (in one and two variables), polynomial, rational, absolute value.

3. Solve systems of inequalities by graphing.

4. Apply equations from #1 in this core outcome to real‐world situations, such as depreciation, growth and decay, and max/min problems.

5. Examine and analyze data, make predictions/interpretations, and do basic modeling.

6. Solve systems of equations by various methods, including matrices.

The learning outcomes detailed in this syllabus meet or exceed the learning outcomes specified by the Kansas Core Outcomes Project for this course as sanctioned by the Kansas Board of Regents to ensure transfer between Kansas colleges and universities. Systemwide Transfer (SWT) Code: MAT1010

In class, students are assessed on the mastery of these outcomes using the learning management system. Student names will not be used when reporting results. Outcomes-based assessment is used to improve the instructional planning, design, and quality of student learning throughout the college

**General Education Outcomes**

For this course, students are expected to demonstrate the skills associated with the college wide learning goals as described by the general education/program outcomes below:

GEM1. Recognize the mathematical concepts that are applicable to a scenario.

GEM2. Apply technology in analysis.

GEM3. Accurately interpret, validate, and communicate the result.

Artifacts of student work are collected from general education course and reviewed by a faculty committee to assess general education outcomes. Artifacts may also be reviewed by a professional outside the college. Student names will not be used when reviewing artifact nor reporting results. Program accomplishment is partially measured through performance on program outcomes. Outcomes-based assessment is used to improve the instructional planning, design, and quality of student learning throughout the college.

**Institutional Learning Outcomes**

For this course, students are expected to demonstrate the skills associated with the college wide learning outcomes as described below.

*Employment*

**Employment:**

ILO\_Em1. Demonstrate knowledge of norms and expectations of professional environments.

ILO\_Em2. Demonstrate skills in working with others in a professional and constructive manner.

In class, students are assessed on the mastery of these outcomes. Student names will not be used when reporting results. Outcomes-based assessment of the institutional learning outcomes is used to ensure we are meeting the mission of the college, following the guiding values and enhance instructional planning, design, and quality of student learning throughout the college.