## Course Outline

**Course Number:** MTH-111  
**Title:** College Algebra  
**Date Approved:** 11/18/2022  
**Credits:** 5  
**Length of Course:** 55

For each credit, the student will be expected to spend, on average, 3 hours per week in combination of in-class and out-of-class activity.

**Grading Method:** A-F or Pass/No Pass  
**Prerequisites:** MTH-095 with a C or better, or placement in MTH-111  
**Co-requisites:** None  
**Recommended:** WRD-098 or placement in WR-121  
**Required:** None  
**Related Instruction Area:** Computation  
**Uses Library Resources:** No

---

**Department:** Mathematics  
**Outline Developed by:** Scot Pruyn  
**Course Approved as:** Lower Division Collegiate

### Course Description:

A transfer course designed for students preparing for trigonometry or calculus. The focus is on the analysis of functions and their properties. These functions will be applied to real-world contexts and explored symbolically, graphically, numerically, and verbally. In accordance with national recommendations, this course emphasizes skill building, problem-solving, modeling, reasoning, communication, connections with other disciplines, and the appropriate use of technology.

### Student Learning Outcomes:

Upon successful completion of this course, students should be able to:

1. use and apply the concepts, language, notation, and properties of functions;
2. recognize scenarios that involve linear, quadratic, polynomial, rational, exponential, and logarithmic functions and use graphical, symbolic, and numerical methods to model these scenarios and draw conclusions; (MA1, MA2)
3. use variables to represent unknown quantities and use graphical, symbolic, and numerical techniques to solve equations and inequalities; (MA1)
4. use mathematical vocabulary and notation in order to understand, interpret, and communicate mathematical information. (MA2)

### Major Topic Outline:
1. General properties of functions
   a. Domain and Range
   b. Average rate of change
   c. Piecewise functions
   d. Combination and composition
   e. Transformations of functions
   f. Inverse functions
2. Linear functions
3. Quadratic and polynomial functions
4. Rational functions
5. Exponential and logarithmic functions
6. Sequences and series
Outcomes addressed by the course:

'C' - this course completely addresses the outcome. Students who successfully complete this course are likely to have attained this learning outcome.

'S' - this course substantially addresses the outcome. More than one course is required for the outcome to be completely addressed. Students who successfully complete all of the required courses are likely to have attained this learning outcome.

'P' - this course partially addresses the outcome. Students will have been exposed to the outcome as part of the class, but the class is not a primary means for attaining the outcome and assessment for general education purposes may not be necessary.

As a result of completing the AAOT/ASOT general education requirements students will be able to:

---

MA: Mathematics Outcomes

C 1. Use appropriate mathematics to solve problems.

C 2. Recognize which mathematical concepts are applicable to a scenario, apply appropriate mathematics and technology in its analysis, and then accurately interpret, validate, and communicate the results.