Purposes of Algebraic Literacy Pathway:
The Algebraic Literacy (AL) pathway prepares students for mathematics futures that include college algebra, pre-calculus, and other courses requiring a background beyond the Mathematical Literacy (MLCS) pathway. The focus of the AL pathway is on building understanding of mathematical systems with a dual emphasis on symbolism and application. The AL pathway includes quantitative topics from areas besides algebra, which supports the needs of both STEM (Science, Technology, Engineering, and Mathematics) bound students and other students.

Prerequisites to the Algebraic Literacy Pathway:
Students should be able to do the following prior to entering the AL Pathway:
- Basic numeracy, including comfort with mathematical operations on fractions, decimals, and percents.
- Understand proportional relationships in a variety of settings, including paired data and graphs.
- Apply properties of algebraic expressions, including distributing, combining like terms, and properties of integer exponents.

Learning Outcomes of Algebraic Literacy:
1. Expressions, equations and inequalities: Students will develop and apply concepts of expressions, equations and inequalities to investigate and describe relationships and solve problems.
   A. Understand the use of parameters and variables, including appropriate replacement sets. [Identify which symbols represent parameters and which represent variables. Represent situations with polynomials or equations. ----]
   B. Show procedural fluency with polynomial expressions, including basic factoring. [Perform flexibly operations of adding, subtracting, and multiplying on polynomials. Perform limited division. Understand and perform limited factoring, such as common factors and difference of squares.]
   C. Use equations, inequalities, and systems of equations & inequalities to represent situations, and find solutions via symbolic, numeric and graphic methods. [Solve linear equations and inequalities flexibly by multiple methods. Use systems of linear equations in two or three variables, and solve by multiple methods.]
   D. Use exponential and polynomial equations to represent situations, and find solutions via symbolic, numeric, and graphic methods. [Recognize which model – linear, exponential, or polynomial- is appropriate. Solve exponential and polynomial equations with technology.]
   E. Use symbolic procedures to manipulate formulas and linear equations. [Solve for a stated variable. Paraphrase a formula in alternate forms, such as without fractions.]
   F. Additional Outcomes for STEM students:
      i. Solve polynomial equations by symbolic methods.
      ii. Understand radical expressions, and simplify roots with indices 2 and 3.
      iii. Understand rational exponent notations, and simplify expressions.
iv. Solve radical and rational equations of limited complexity by symbolic methods.

v. Use logarithmic equations to represent situations, and find solutions via symbolic, numeric, and graphic methods.

vi. Understand basic conic sections (circle and parabola).

2. Functions: **Students will understand the basic algebraic functions in terms of fundamental concepts such as rate of change, input/output variables, domain & range, and parameters, and use multiple representations of functions.**

   A. Understand basic algebraic functions – linear, exponential, and polynomial functions. [Represent functions in alternate forms – symbolic, graphic, and numeric. Identify appropriate replacement sets for a function in a given situation. Determine the domain and range for a given function.]

   B. Identify and write the appropriate function for a situation or set of ordered pairs. [Determine the correct pattern for the data. Determine the initial value. Determine the slope or multiplier or coefficient for the function.]

   C. Determine whether a discrete or continuous model is appropriate for a situation.

   D. Understand properties of basic algebraic functions. [Determine a rate of change in an interval for any function. Predict the effects of changing a parameter in a given function.]

   E. Identify relations that are not functions.

   F. Additional Outcomes for STEM:

      i. Understand radical functions (indices 2 and 3) including domain and range.

      ii. Understand rational functions of limited complexity including domain.

      iii. Understand algebra of functions and composition.

      iv. Understand inverse functions and be able to find an equation of the inverse of a function.

3. Modeling and Statistics: **Students will develop and apply basic concepts of modeling and statistics to investigate and describe situations and solve problems.**

   A. Use basic concepts of measurement and data.

   B. Understand theoretical and modeled relationships.

   C. Understand how to judge which model (linear, exponential, or polynomial) is a better choice. Use models to make predictions.