The math and quantitative reasoning levels include many pathways, so no single course will meet all outcomes. Some courses may contain multiple levels, so select the level that contains the outcomes that best represent the level at which the student completes the course (not enters the course). That is, upon completion of this course, the student will be able to:

Mathematics and Quantitative Reasoning	**Quantitative and Mathematical Practices**	**Number Sense and Operations, Solving Equations**	**Geometry, Measurement, Graphing**	**Algebraic and Critical Thinking, Applications**	**Data Analysis, Statistics**
CB21 A or Level 6-Secondary (1 level below transfer)					
CB21A Based on previous CB21A outcomes and the EFLs.	Demonstrate quantitative reasoning using units, precise definitions, mathematical terms and notation. Create algebraic and geometric models to solve mathematical problems, interpret data, make inferences, and determine the reasonableness of the results.	Solve a variety of nonlinear equations such as logarithmic, inverse, quadratic, absolute value, rational, and radical. Demonstrate an understanding of the set of irrational numbers (radicals and rational exponents), real numbers, and complex numbers. Demonstrate an understanding of consequences and propagation of rounding errors.	Create, analyze and interpret graphs of linear and non-linear relations. Solve problems involving similarity and congruence criteria for triangles. Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems. Use formal arguments to support conjectures and theorems.	Apply algebra skills to a variety of applications such as: growth and decay, logical reasoning, geometry, optimization, and quadratic functions with applications in areas such as motion, mixture, and work. Manipulate polynomial, rational, and exponential expressions. Use equations/inequalities to solve problems both algebraically and graphically. Construct, graph, compare, and interpret functions and relations in linear, quadratic, and exponential, logarithmic, and conic section forms.	Calculate and interpret measures of central tendency. Discuss the implications of data collection, experimental design, correlation vs. causation and ethics when conducting a statistical study. Summarize, represent, and interpret data based on two categorical and quantitative variables. Compare data sets by looking at commonalities, differences, and measures in shape, center, and spread. Identify possible associations and trends in data, particularly in linear models.

CB21 B or Level 5-High Intermediate (2 levels below transfer)					
CB21B Based on previous CB21B outcomes and the EFLs.	Define and manipulate linear expressions and polynomials. Demonstrate critical thinking by using an efficient strategy for solving multi-step problems. Create algebraic and geometric models to solve problems.	Solve any linear equation, a variety of 2-variable linear equations (systems) and factorable quadratic equations. Solve contextualized mathematical problems that involve factoring polynomials. Apply ratio and percent concepts, including rates and proportional relationships to solve multi-step problems.	Plot points and graph linear equations on a Cartesian coordinate system. Solve contextualized mathematical problems that involve volume and surface area of 3-dimensional geometric figures. Use informal arguments to support conjectures and theorems on angle relationships. Use the Pythagorean theorem to determine distance in the coordinate plane and in applications.	Use algebraic and graphical representations to solve contextualized mathematical problems, involving linear equations, inequalities, systems of two linear equations in two variables, and interpret the solution(s) in the context of the problem.	Apply elementary concepts of random sampling to make observations about a single population and two populations using the ideas of mean, median, mode, and variability.

CB21 C or Level 4-Middle Intermediate (3 levels below transfer)					
CB21C Based on previous CB21C outcomes and the EFLs.	Define and manipulate signed numbers and variables. Demonstrate critical thinking in solving multi-step problems, using mathematical terms and notation appropriately. Calculate accurately and use estimation strategies to assess the reasonableness of results.	Solve simple linear equations in one variable. Use the number line and the rectangular coordinate system appropriately. Apply the concept of absolute value to find horizontal and vertical distances. Apply the properties of integer exponents, and evaluate, estimate, and compare simple square roots and cube roots. Demonstrate an understanding of ratio, rate, percent concepts, and proportional relationships.	Graph solutions to linear equations and inequalities in one variable on the number line. Solve contextualized mathematical problems that involve angle measure, circumference, and area of 2-dimensional figures. Explain congruence and similarity with respect to 2-dimensional figures. Use the Pythagorean theorem (triples) to determine missing lengths in right triangles.	Apply a known formula to a given situation. Explain connections among proportional relationships, lines, and linear equations. Describe numerical and formulaic expressions and equations, then use them to solve contextualized mathematical problems.	Summarize and describe numerical data sets in relation to their context, including determining basic measures of center and spread. Describe patterns and unusual deviations from patterns. Explain and apply the concept of probability at the introductory level.

CB 21 D or Level 3-Low Intermediate (4 levels below transfer)					
CB21D Based on previous CB21D outcomes and the EFLs.	Define and manipulate rational numbers. Solve multi-step contextualized mathematical problems, explain the work, and use correct units. Use diagrams or sketches and identify multiple strategies for solving a problem.	Introduce concepts and symbols of equality and inequality. Clarify and perform calculations using all four operations on multi-digit whole numbers and decimals: place value, read, write, count, compare, round. Demonstrate an understanding of common factors, common multiples in determining equivalent fractions and comparing fractions. Use concepts in ratio to describe the relationship between two quantities and the unit rate associated with a ratio. Explain ordering of a full set of rational numbers, including both negative and positive fractions.	Demonstrate a basic understanding of the number line and coordinate plane, and plot points (i.e., ordered pairs) and place polygons in the coordinate plane to solve problems. Use formulas to determine the area of two-dimensional shapes such as triangles and quadrilaterals. Determine the surface area of three-dimensional shapes composed of rectangles and triangles, and find the volume of right rectangular prisms. Solve measurement word problems (such as those that involve area, perimeter, distance, time intervals, liquid volumes, mass, and money) that involve simple fractions or decimals.	Apply the correct operation to a given situation. Convert arithmetic expressions to algebraic expressions using a symbol to represent an unknown value. Write a simple inequality that represents a constraint or condition.	Describe simple data sets using concepts as center, spread, and the overall shape of a distribution of data. Present data sets graphically.

CB21 E or Level 2-Beginning Basic (5 levels below transfer, generally not used for credit courses)					
CB21E Based on EFLs.	Use diagrams or sketches to model mathematical problems. Explain processes and results using mathematical terms and symbols appropriately. Identify patterns and structure in sets of numbers, including in multiplication or addition tables.	Demonstrate an understanding of three-digit whole numbers: place value, read, write, count, compare, round. Solve one and two step application problems using the four operations on three-digit whole numbers. Describe simple factions: unit fractions, representation on a number line, equivalent fractions, comparing fractions with same numerator or denominator.	Partition shapes into parts with equal areas and describe each part as a fraction of the whole. Solve problems involving U.S. Customary and metric units for measurement and estimation of intervals of time, liquid volumes, and masses of objects. Describe the concept of and solve problems involving area and perimeter in relation to addition and multiplication.	Solve for the unknown number in equations consisting of multiplication or division.	Solve one- and two-step problems using scaled bar graphs. Generate measurement data by measuring lengths to the nearest half- and quarter-inch, and display that data by making a line plot marked off in appropriate units.
CB21 F or Level 1-Beginning Literacy (6 levels below transfer, generally not used for credit courses)					
CB21F Based on EFLs.	Solve simple contextualized mathematical problems. Identify patterns and structure in sets of numbers and geometric shapes.	Demonstrate an understanding of two-digit whole numbers: place value, read, write, count, compare, round. Solve one and two step application problems using the four operations on two-digit whole numbers.	Describe or draw 2-dimensional and 3-dimensional shapes based on attributes, such as shape, size, orientation, number of sides and/or vertices (angles), or the lengths of sides. Create composite shapes from typical two-dimensional shapes.	Solve addition and subtraction problems. Solve for the unknown number in equations consisting of addition or subtraction.	Organize, represent, and interpret simple data sets.