Mathematics

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

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

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

	CB21 E or Level 2-Beg	inning Basic (5 levels bel	ow transfer, generally no	ot used for credit courses)	
CB21E	Use diagrams or sketches	Demonstrate an	Partition shapes into	Solve for the unknown	Solve one- and two-
	to model mathematical	understanding of	parts with equal areas	number in equations	step problems using
Based on EFLs.	problems.	three-digit whole	and describe each part	consisting of	scaled bar graphs.
		numbers: place value,	as a fraction of the	multiplication or division.	
	Explain processes and	read, write, count,	whole.		Generate measurement
	results using	compare, round.			data by measuring
	mathematical terms and		Solve problems		lengths to the nearest
	symbols appropriately.	Solve one and two step	involving U.S.		half- and quarter-inch,
		application problems	Customary and metric		and display that data
	Identify patterns and	using the four	units for measurement		by making a line plot
	structure in sets of	operations on three-	and estimation of		marked off in
	numbers, including in	digit whole numbers.	intervals of time,		appropriate units.
	multiplication or addition		liquid volumes, and		
	tables.	Describe simple	masses of objects.		
		factions: unit fractions,			
		representation on a	Describe the concept		
		number line,	of and solve problems		
		equivalent fractions,	involving area and		
		comparing fractions	perimeter in relation to		
		with same numerator	addition and		
		or denominator.	multiplication.		
				not used for credit courses)	
CB21F	Solve simple	Demonstrate an	Describe or draw 2-	Solve addition and	Organize, represent,
	contextualized	understanding of two-	dimensional and 3-	subtraction problems.	and interpret simple
Based on EFLs.	mathematical problems.	digit whole numbers:	dimensional shapes		data sets.
		place value, read,	based on attributes,	Solve for the unknown	
	Identify patterns and	write, count, compare,	such as shape, size,	number in equations	
	structure in sets of	round.	orientation, number of	consisting of addition or	
	numbers and geometric		sides and/or vertices	subtraction.	
	shapes.	Solve one and two step	(angles), or the lengths		
		application problems	of sides.		
		using the four			
		operations on two-	Create composite		
		digit whole numbers.	shapes from typical		
			two-dimensional		
			shapes.		