Attachment F

Special Education Mathematics GACE Requirements Mapped to Georgia Southern University Mathematics Courses

Strand	Performance Standard	Course Taught
0012 Understand concepts and skills related to numbers and mathematical operations		
	analyzing the structure of number systems (e.g., number bases, place value)	MATH 2008
	demonstrating knowledge of number theory and the characteristics of whole numbers (e.g., prime and composite numbers, prime factorization, multiples, factors)	MATH 2008
	identifying and analyzing a variety of models for representing numbers (e.g., fractions strips, diagrams, number lines)	MATH 2008
	demonstrating knowledge of equivalency among different representations of numbers (e.g., fractions, decimals, percents, roots, scientific notations)	MATH 2008
	comparing, ordering, and rounding different representations of numbers	MATH 2008
	demonstrating knowledge of the relationships among mathematical operations and the properties of number operations (e.g., commutative, associative)	MATH 2008
	applying knowledge of mathematical operations to problems involving fractions, decimals, and integers	MATH 2008
0013 Understand principles and applications of measurement and the concepts and geometry		
	identifying appropriate measurement procedures, tools, and units to solve a variety of problems (e.g., involving length, area, volume, angles, weight, temperature, time, or rates of change)	MATH 3032
	converting measurements within and between customary and metric systems	MATH 3032
	applying knowledge of similarity, scale factors, and proportional reasoning to solve measurement problems	MATH 5137
	analyzing and applying properties of points, lines (e.g., parallel, perpendicular) planes, angles (e.g., complementary, supplementary), lengths, and distances, (e.g., Pythagorean theorem)	MATH 3032, 5137
	demonstrating knowledge of the properties of similarity and congruence	MATH 5137
	analyzing and applying properties of plane and solid geometric figures (e.g., triangles, quadrilaterals, spheres, cones) to solve problems	MATH 3032

	representing basic geometric figures in the coordinate plane	MATH 5137
	identifying and applying concepts of symmetry and transformations (e.g., translations, rotations, reflections) to figures in the coordinate plane	MATH 5137
0014 Understand concepts and skills related to algebra		
	analyzing, extending, and describing a variety of patterns (e.g., numerical, pictorial) using rules and algebraic expressions	MATH 5135
	translating verbal descriptions into algebraic expressions that model problem situations	MATH 5135
	applying the methods of algebra to solve equations and inequalities	MATH 5135
	simplifying, evaluating, and performing operations (e.g., factoring, grouping) on polynomials and other algebraic expressions	MATH 5135
	analyzing the relationship between a linear equation and its graph	MATH 5135
	describing and using various representations (e.g., verbal, tabular, graphical, algebraic) of linear functions)	MATH 5135
0015 Understand concepts and skills related to data analysis and principles of probability		
	demonstrating knowledge of the nature of sampling, the collection of data through surveys, the significance of sample size, and random sampling	MATH 5130
	applying knowledge of methods for organizing and interpreting data in a variety of formats (e.g., tables, frequency distributions, line graphs, circle graphs, histograms, box-and-whisker plots)	MATH 3032, 5130
	determining and analyzing measures of central tendency (i.e., mean, median, mode) and dispersion (e.g., range, standard deviation)	MATH 3032, 5130
	drawing valid conclusions based on data	MATH 3032, 5130
	applying addition and multiplication counting principles to determine the number of outcomes related to an event	MATH 3032
	determining probabilities of simple and compound events (e.g., dependent, independent, mutually exclusive, conditional)	MATH 3032, 5130
	using different graphical representations (e.g., Venn diagrams, tree diagrams) to calculate and interpret probabilities	MATH 3032, 5130
0016 Understand processes and approaches for exploring mathematics and solving problems		
	communicating mathematical ideas using a variety of representations (e.g., numeric, tabular, graphical, pictorial, symbolic)	MATH 5135
	translating between various representations of mathematical ideas (e.g., algebraic, graphical, symbolic, diagrammatic) and everyday language	MATH 5135
	identifying effective strategies (e.g., determining relevant information, simplifying, estimating) for solving problems in mathematical and other	MATH 2008, 3032,

	contexts	5130, 5137
	demonstrating knowledge of strategies for evaluating the reasonableness of a solution to a problem	MATH 2008, 3032, 5130, 5135
	recognizing connections among different concepts and areas of mathematics (e.g., algebra and geometry) and using them to solve problems	MATH 5135
	applying correct mathematical reasoning to draw valid conclusions and evaluate mathematical arguments and proofs	MATH 3032, 5130, 5137
	applying mathematical concepts and strategies across the curriculum and in everyday contexts to model and solve problems	MATH 3032, 5130, 5135, 5137
	demonstrating knowledge of the analysis of problem-solving steps to determine areas of weakness or misunderstanding	MATH 2008, 3032, 5130, 5135, 5137