The objective of this table is to align various high school mathematics courses to MGF 1106 in order to show the progression from secondary to post-secondary mathematics education.

MGF 1106 PROFILE DESCRIPTION	1207310: Liberal Arts Mathematics 2	1210300: Probability and Statistics with Applications Honors	1200330: Algebra 2
SYSTEMATIC COUNTING			
PROBABILITY		S-CP.1.2 “Understand probability of independent events.” S-CP.1.3 “Understand conditional probability.” S-CP.1.5 “Recognize and explain conditional probability.” S-CP.2.6 “Find conditional probability.” S-CP.2.7 “Apply the Addition Rule.” S-CP.2.8 “Apply the general Multiplication Rule.” S-CP.2.9 “Use permutations and combinations.” S-MD.1.1 “Define random variable a value to each event in sample space.” S-MD.1.2 “Calculate the expected value and interpret it as mean of distribution.” S-MD.1.3 “Develop a probability distribution in which theoretical probabilities can be calculated.” S-MD.1.4 “Develop a probability distribution which probabilities assigned empirically.”	S-CP.1.2 “Understand probability of independent events.” S-CP.1.3 “Understand conditional probability.” S-CP.1.5 “Recognize and explain conditional probability.” S-CP.2.6 “Find conditional probability.” S-CP.2.7 “Apply the Addition Rule.”
HISTORY OF MATHEMATICS			
GEOMETRY	G-GPE.2.4 “Use coordinates to prove simple geometric theorems algebraically.”		

*__APPLICATION OF THE ABOVE TOPICS__ included in topics where relevant

MGF 1106 PROFILE DESCRIPTION	1207310: Liberal Arts Mathematics 2	1210300: Probability and Statistics with Applications Honors	1200330: Algebra 2
STATISTICS	S-CP.1.4 "Construct and interpret two-way frequency tables." S-CP.1.5 "Recognize and explain conditional probability." S-IC.1.1 "Understand statistics as process for making inferences." S-IC.1.2 "Decide if model is consistent with results." S-IC.2.3 "Recognize the purpose/differences of survey, experiment, observational studies." S-IC.2.4 "Use data from sample survey to estimate population." S-IC.2.5 "Use data from experiment to compare treatments." S-IC.2.6 "Evaluate reports based on data."	S-CP.1.4 "Construct and interpret two-way frequency tables." S-IC.1.1 "Understand statistics as process for making inferences." S-IC.1.2 "Decide if model is consistent with results." S-IC.2.3 "Recognize the purpose/differences of survey, experiment, observational studies." S-IC.2.4 "Use data from sample survey to estimate population." S-IC.2.5 "Use data from experiment to compare treatments." S-IC.2.6 "Evaluate reports based on data." S-ID.1.1 "Represent data on the real number line (dot plots, box plots, histograms)." S-ID.1.2 "Compare center and spread of two or more different data sets." S-ID.1.3 "Interpret differences in shape, center, and spread of data sets, accounting for extreme data points." S-ID.1.4 "Use mean and standard deviation to fit normal distribution and estimate population percentages." S-ID.2.5 "Summarize categorical data into two-way frequency table and interpret relative frequencies."	S-CP.1.4 "Construct and interpret two-way frequency tables." S-IC.1.1 "Understand statistics as process for making inferences." S-IC.1.2 "Decide if model is consistent with results." S-IC.2.3 "Recognize the purpose/differences of survey, experiment, observational studies." S-IC.2.4 "Use data from sample survey to estimate population." S-IC.2.5 "Use data from experiment to compare treatments." S-IC.2.6 "Evaluate reports based on data." S-ID.1.4 "Use mean and standard deviation to fit it to normal distribution to estimate population percentages."

*__APPLICATION OF THE ABOVE TOPICS__ included in topics where relevant

MGF 1106 PROFILE DESCRIPTION	1207310: Liberal Arts Mathematics 2	1210300: Probability and Statistics with Applications Honors	1200330: Algebra 2
SETS			
LOGIC			
STANDARDS THAT ALIGN TO MULTIPLE OBJECTIVES		S-CP.1.1 "Describe events as subset of sample space using categories of outcomes (union, intersection, complement)." S-MD.2.5 "Weigh possible outcomes of decision and find expected values." S-MD.2.6 "Use probability to make fair decisions." S-MD.2.7 "Analyze decisions and strategies using probability concepts."	S-CP.1.1 "Describe events as subset of sample space using categories of outcomes (union, intersection, complement)." N-Q.1.2 "Define appropriate quantities."
PRIOR KNOWLEDGE STANDARDS	N-RN.2.3 "Explain why operations on rational/irrational result in rational/irrational number."		A-CED.1.4 "Rearrange formulas." A-REI.1.1 "Explain each step in solving simple equation."

*__APPLICATION OF THE ABOVE TOPICS__ included in topics where relevant

MGF 1106 PROFILE DESCRIPTION	1207310: Liberal Arts Mathematics 2	1210300: Probability and Statistics with Applications Honors	1200330: Algebra 2
EXTENDED KNOWLEDGE STANDARDS	G-GPE.1.1 “Derive the equation of a circle.” A-APR.2.3 “Zeros of polynomials by factoring to construct rough graph.” A-SSE.1.2 “Use structure of expression to rewrite it.” A-SSE.2.3 a “Choose and produce equivalent form of expression to reveal properties: factor quadratic.”A-APR.3.4 “Prove polynomial identities.” A-SSE.2.4 “Derive the formula for sum of finite geometric series.” F-LE.1.1 “Distinguish between situations that can be modeled with linear/exponential functions.” F-LE.2.5 “Interpret parameters in linear and exponential functions in terms of context.” F-LE.1.4 “For exponential models, express as logarithm to find solution.” F-IF.3.7 a “Graph functions: linear.” F-IF.3.7 d “Graph functions: rational.” G-GPE.2.5 “Prove slope for parallel and perpendicular lines.” A-APR.2.2 “Know and apply Remainder Theorem.” A-APR.4.6 “Rewrite simple rational expressions.” A-SSE.2.3 c “Choose and produce equivalent form of expression to reveal properties: properties of exponents.” F-IF.3.8 b “Write function to reveal properties: properties of exponents for exponential.”	S-ID.2.6 “Represent data on scatter plot, and describe how the variables are related.” S-ID.3.7 “Interpret rate of change and constant term of linear model in context of data.” S-ID.3.8 “Compute and interpret the correlation coefficient.” S-ID.3.9 “Distinguish between correlation and causation.”	A-SSE.2.3 c “Choose and produce equivalent form of expression to reveal properties: properties of exponents.” F-IF.3.8 b “Write function to reveal properties: properties of exponents for exponential.” N-RN.1.1 “Explain definition of rational exponents from extending integer exponents.” N-RN.1.2 “Rewrite expressions involving radicals and rational exponents.” A-APR.2.2 “Know and apply Remainder Theorem.” A-APR.4.6 “Rewrite simple rational expressions.” A-APR.2.3 “Zeros of polynomials by factoring to construct rough graph.” A-SSE.1.2 “Use structure of expression to rewrite it.” A-SSE.2.3 a “Choose and produce equivalent form of expression to reveal properties: factor quadratic.”A-APR.1.1 “Operations on polynomials.” A-CED.1.2 “Create equations in two or more variables.” A-CED.1.3 “Represent constraints by equations or inequalities.” F-IF.3.7 a “Graph functions: linear.” A-REI.2.4 a-b “Solve quadratic equations.” A-SSE.2.3 b “Choose and produce equivalent form of expression to reveal properties: complete the square.” F-IF.3.7 a “Graph functions: quadratic.” F-IF.3.8 a “Write function to reveal properties: quadratic.” G-GPE.1.2 “Derive the equation of a parabola given focus and directrix.”

*__APPLICATION OF THE ABOVE TOPICS__ included in topics where relevant

	N-RN.1.1 “Explain definition of rational exponents from extending integer exponents.” N-RN.1.2 “Rewrite expressions involving radicals and rational exponents.” N-CN.1.1 “Know there is a complex number I and in the form of a + bi.” N-CN.1.2 “Operations with complex numbers.” A-REI.2.4 a-b “Solve quadratic equations.” A-SSE.2.3 b “Choose and produce equivalent form of expression to reveal properties: complete the square.” F-IF.3.7 a “Graph functions: quadratic.” F-IF.3.8 a “Write function to reveal properties: quadratic.” G-GPE.1.2 “Derive the equation of a parabola given focus and directrix.” N-CN.3.7 “Solve quadratics that have complex solutions.”		N-CN.1.1 “Know there is a complex number I and in the form of a + bi.” N-CN.1.2 “Operations with complex numbers.” N-CN.3.7 “Solve quadratics that have complex solutions.” A-REI.1.2 “Solve simple rational and radical equations.” F-IF.3.7 d “Graph functions: rational.” A-CED.1.1 “Create equations and inequalities in one variable (linear, quadratic, rational, absolute value, exponential).” A-SSE.1.1 a-b “Interpret expressions in terms of context.” F-BF.1.2 “Write arithmetic and geometric sequences recursively and explicitly.” F-LE.2.5 “Interpret parameters in linear and exponential functions in terms of context.” A-APR.3.4 “Prove polynomial identities.” A-SSE.2.4 “Derive the formula for sum of finite geometric series.” F-BF.2.a “Use change of base formula.” F-LE.1.4 “For exponential models, express as logarithm to find solution.” F-TF.1.1 “Understand radian measure of an angle on unit circle and convert between degrees and radians.” F-TF.1.2 “Explain how coordinates on unit circle enables extension of trig functions.” F-TF.2.5 “Choose trig functions to model periodic phenomena.” F-TF.3.8 “Prove Pythagorean identity and use to calculate trig ratios.”

*__APPLICATION OF THE ABOVE TOPICS__ included in topics where relevant

*__APPLICATION OF THE ABOVE TOPICS__ included in topics where relevant

The objective of this table is to align upper-level high school mathematics courses to MAC 1105 in order to show the progression from secondary to post-secondary mathematics education.

MAC 1105 PROFILE DESCRIPTION	1207310: Liberal Arts Mathematics 2	1200700: Math for College Readiness	1200330: Algebra 2
FUNCTIONS & FUNCTION NOTATION		F-IF.1.1 "Understand function from domain to one element of range."	
DOMAINS & RANGES OF FUNCTIONS		F-IF.2.5 "Relate domain to its graph and relationship it describes."	F-IF.2.5 "Relate domain to its graph and relationship it describes."
GRAPHS OF FUNCTIONS AND RELATIONS	G-GPE.1.1 "Derive the equation of a circle." A-APR.2.3 "Zeros of polynomials by factoring to construct rough graph." F-IF.3.7 b "Graph functions: piece-wise." F-IF.3.7 c "Graph functions: polynomial." F-IF.3.9 "Compare properties of two functions."	A-APR.2.3 "Zeros of polynomials by factoring to construct rough graph." F-IF.2.4 "Interpret key features of graph and table and sketch graphs." F-BF.2.3 "Identify the effect on graph through transformations." F-IF.3.7 b "Graph functions: piece-wise." F-IF.3.7 c "Graph functions: polynomial."	A-APR.2.3 "Zeros of polynomials by factoring to construct rough graph." F-BF.2.3 "Identify the effect on graph through transformations." F-IF.2.4 "Interpret key features of graph and table and sketch graphs." F-IF.3.7 b "Graph functions: piece-wise." F-IF.3.7 c "Graph functions: polynomial." F-IF.3.9 "Compare properties of two functions."
OPERATIONS ON FUNCTIONS		F-BF.1.1 a-c "Write a function that describes relationship between two quantities: recursive, operations on functions, composition of functions."	F-BF.1.1 a-c "Write a function that describes relationship between two quantities: recursive, operations on functions, composition of functions."
INVERSE FUNCTIONS			F-BF.2.4 a-d "Find inverse functions."

*__APPLICATION OF THE ABOVE TOPICS__ included in topics where relevant

MAC 1105 PROFILE DESCRIPTION	1207310: Liberal Arts Mathematics 2	1200700: Math for College Readiness	1200330: Algebra 2
LINEAR, QUADRATIC, AND RATIONAL FUNCTIONS	F-IF.3.7 a "Graph functions: linear." G-GPE.2.5 "Prove slope for parallel and perpendicular lines." A-REI.2.4 a-b "Solve quadratic equations." F-IF.3.7 a "Graph functions: quadratic." F-IF.3.8 a "Write function to reveal properties: quadratic." G-GPE.1.2 "Derive the equation of a parabola given focus and directrix." N-CN.3.7 "Solve quadratics that have complex solutions." F-IF.3.7 d "Graph functions: rational."	A-CED.1.2 "Create equations in two or more variables." A-CED.1.3 "Represent constraints by equations or inequalities." A-REI.2.3 "Solve linear equations and inequalities." F-IF.2.6 "Average rate of change." F-IF.3.7 a "Graph functions: linear." G-GPE.2.5 "Prove slope for parallel and perpendicular lines." S-ID.3.7 "Interpret slope and intercept in context of data." A-REI.2.4 a-b "Solve quadratic equations." F-IF.3.7 a "Graph functions: quadratic." F-IF.3.8 a "Write function to reveal properties: quadratic." F-IF.3.7 d "Graph functions: rational."	A-CED.1.2 "Create equations in two or more variables." A-CED.1.3 "Represent constraints by equations or inequalities." F-IF.2.6 "Average rate of change." F-IF.3.7 a "Graph functions: linear." A-REI.2.4 a-b "Solve quadratic equations." F-IF.3.7 a "Graph functions: quadratic." F-IF.3.8 a "Write function to reveal properties: quadratic." G-GPE.1.2 "Derive the equation of a parabola given focus and directrix." N-CN.3.7 "Solve quadratics that have complex solutions." F-IF.3.7 d "Graph functions: rational."
ABSOLUTE VALUE AND RADICAL FUNCTIONS	F-IF.3.7 b "Graph functions: square root, cube root, absolute value."	A-REI.1.2 "Solve simple rational and radical equations." F-IF.3.7 b "Graph functions: square root, cube root, absolute value."	A-REI.1.2 "Solve simple rational and radical equations." F-IF.3.7 b "Graph functions: square root, cube root, absolute value."
EXPONENTIAL AND LOGARITHMIC PROPERTIES, FUNCTIONS, AND EQUATIONS	F-LE.1.4 "For exponential models, express as logarithm to find solution." F-IF.3.8 b "Write function to reveal properties: properties of exponents for exponential." F-IF.3.7 e "Graph functions: exponential, logarithmic."	F-IF.3.8 b "Write function to reveal properties: properties of exponents for exponential." F-IF.3.7 e "Graph functions: exponential, logarithmic."	F-BF.2.a "Use change of base formula." F-LE.1.4 "For exponential models, express as logarithm to find solution." F-IF.3.8 b "Write function to reveal properties: properties of exponents for exponential." F-IF.3.7 e "Graph functions: exponential, logarithmic."

*__APPLICATION OF THE ABOVE TOPICS__ included in topics where relevant

MAC 1105 PROFILE DESCRIPTION	1207310: Liberal Arts Mathematics 2	1200700: Math for College Readiness	1200330: Algebra 2
SYSTEMS OF EQUATIONS AND INEQUALITIES	A-REI.3.7 "Solve simple system of linear and quadratic equations."	A-REI.3.5 "Prove systems of equations." A-REI.3.6 "Solve systems of equations." A-REI.4.11 "Explain why intersection of graphs is solutions of f(x)=g(x)."	A-REI.3.6 "Solve systems of equations." A-REI.3.7 "Solve simple system of linear and quadratic equations." A-REI.4.11 "Explain why intersection of graphs is solutions of f(x)=g(x)."
STANDARDS THAT ALIGN TO MULTIPLE OBJECTIVES	A-SSE.1.2 "Use structure of expression to rewrite it." A-SSE.2.3 a "Choose and produce equivalent form of expression to reveal properties: factor quadratic." A-SSE.2.3 b "Choose and produce equivalent form of expression to reveal properties: complete the square." A-SSE.2.3 c "Choose and produce equivalent form of expression to reveal properties: properties of exponents." F-LE.1.2 "Construct linear and exponential functions (arithmetic & geometric sequences)." F-LE.1.1 "Distinguish between situations that can be modeled with linear/exponential functions." F-LE.2.5 "Interpret parameters in linear and exponential functions in terms of context."	A-SSE.1.2 "Use structure of expression to rewrite it." A-SSE.2.3 a "Choose and produce equivalent form of expression to reveal properties: factor quadratic." A-SSE.2.3 b "Choose and produce equivalent form of expression to reveal properties: complete the square." A-SSE.2.3 c "Choose and produce equivalent form of expression to reveal properties: properties of exponents." A-SSE.1.1 a-b "Interpret expressions in terms of context." A-APR.1.1 "Operations on polynomials." A-CED.1.1 "Create equations and inequalities in one variable (linear, quadratic, rational, absolute value, exponential)."	A-SSE.1.2 "Use structure of expression to rewrite it." A-SSE.2.3 a "Choose and produce equivalent form of expression to reveal properties: factor quadratic." A-SSE.2.3 b "Choose and produce equivalent form of expression to reveal properties: complete the square." A-SSE.2.3 c "Choose and produce equivalent form of expression to reveal properties: properties of exponents." A-APR.1.1 "Operations on polynomials." A-CED.1.1 "Create equations and inequalities in one variable (linear, quadratic, rational, absolute value, exponential)." F-BF.1.2 "Write arithmetic and geometric sequences recursively and explicitly."

*__APPLICATION OF THE ABOVE TOPICS__ included in topics where relevant

MAC 1105 PROFILE DESCRIPTION	1207310: Liberal Arts Mathematics 2	1200700: Math for College Readiness	1200330: Algebra 2
PRIOR KNOWLEDGE STANDARDS	N-RN.2.3 "Explain why operations on rational/irrational result in rational/irrational number." A-APR.2.2 "Know and apply Remainder Theorem." A-APR.4.6 "Rewrite simple rational expressions." N-RN.1.1 "Explain definition of rational exponents from extending integer exponents." N-RN.1.2 "Rewrite expressions involving radicals and rational exponents." N-CN.1.1 "Know there is a complex number I and in the form of a + bi." N-CN.1.2 "Operations with complex numbers." F-LE.1.3 "Observe using graphs and tables that increasing exponentially eventually exceeds linear, quadratic, polynomial."	7.NS.1.1 a-b "Add and subtract rational numbers." 7.NS.1.2 a-d "Multiply and divide rational numbers." 7.EE.2.4 a-b "Write and solve simple equations and inequalities." 8.NS.1.1 "Irrational numbers." 8.NS.1.2 "Use rational approximations of irrational numbers." 8.EE.1.1 "Apply properties of integer exponents." 8.EE.1.4 "Scientific notation." 8.EE.2.5 "Graph proportional relationships." 8.F.2.4 "Construct a function to model linear relationships." A-CED.1.4 "Rearrange formulas." A-REI.1.1 "Explain each step in solving simple equation." N-RN.2.3 "Explain why operations on rational/irrational result in rational/irrational number." A-APR.4.6 "Rewrite simple rational expressions." A-APR.4.7 "Operations on rational expressions." N-RN.1.1 "Explain definition of rational exponents from extending integer exponents." N-RN.1.2 "Rewrite expressions involving radicals and rational exponents." A-REI.4.10 "Understand that graph of equation is set all solutions." N-Q.1.1 "Use units to understand problems and to guide solutions." N-Q.1.2 "Define appropriate quantities." N-Q.1.3 "Choose level accuracy appropriate to limitations."	A-CED.1.4 "Rearrange formulas." A-REI.1.1 "Explain each step in solving simple equation." A-APR.2.2 "Know and apply Remainder Theorem." A-APR.4.6 "Rewrite simple rational expressions." N-RN.1.1 "Explain definition of rational exponents from extending integer exponents." N-RN.1.2 "Rewrite expressions involving radicals and rational exponents." N-CN.1.1 "Know there is a complex number i and in the form of a + bi." N-CN.1.2 "Operations with complex numbers." A-SSE.1.1 a-b "Interpret expressions in terms of context." F-LE.2.5 "Interpret parameters in linear and exponential functions in terms of context." N-Q.1.2 "Define appropriate quantities."

*__APPLICATION OF THE ABOVE TOPICS__ included in topics where relevant

MAT 1033 PROFILE DESCRIPTION	1207310: Liberal Arts Mathematics 2	1200700: Math for College Readiness	1200330: Algebra 2
EXTENDED KNOWLEDGE STANDARDS	A-APR.3.4 "Prove polynomial identities." A-SSE.2.4 "Derive the formula for sum of finite geometric series." G-GPE.2.4 "Use coordinates to prove simple geometric theorems algebraically." S-CP.1.4 "Construct and interpret two-way frequency tables." S-CP.1.5 "Recognize and explain conditional probability." S-IC.1.1 "Understand statistics as process for making inferences." S-IC.1.2 "Decide if model is consistent with results." S-IC.2.3 "Recognize the purpose/differences of survey, experiment, observational studies." S-IC.2.4 "Use data from sample survey to estimate population." S-IC.2.5 "Use data from experiment to compare treatments." S-IC.2.6 "Evaluate reports based on data."	A-APR.3.4 "Prove polynomial identities." G-GPE.2.6 "Find point on line between two given points in given ratio." G-GPE.2.7 "Use coordinates to compute perimeters/areas of polygons." S-ID.2.5 "Summarize categorical data in two-way frequency table." S-ID.2.6 "Represent data on scatter plot."	A-APR.3.4 "Prove polynomial identities." A-SSE.2.4 "Derive the formula for sum of finite geometric series." F-TF.1.1 "Understand radian measure of an angle on unit circle and convert between degrees and radians." F-TF.1.2 "Explain how coordinates on unit circle enables extension of trig functions." F-TF.2.5 "Choose trig functions to model periodic phenomena." F-TF.3.8 "Prove Pythagorean identity and use to calculate trig ratios." S-CP.1.1 "Describe events as subset of sample space using categories of outcomes (union, intersection, complement)." S-CP.1.2 "Understand probability of independent events." S-CP.1.3 "Understand conditional probability." S-CP.1.4 "Construct and interpret two-way frequency tables." S-CP.1.5 "Recognize and explain conditional probability." S-CP.2.6 "Find conditional probability." S-CP.2.7 "Apply the Addition Rule." S-IC.1.1 "Understand statistics as process for making inferences." S-IC.1.2 "Decide if model is consistent with results." S-IC.2.3 "Recognize the purpose/differences of survey, experiment, observational studies." S-IC.2.4 "Use data from sample survey to estimate population." S-IC.2.5 "Use data from experiment to compare treatments." S-IC.2.6 "Evaluate reports based on data." S-ID.1.4 "Use mean and standard deviation to fit it to normal distribution to estimate population percentages."

*__APPLICATION OF THE ABOVE TOPICS__ included in topics where relevant

The objective of this table is to align upper-level high school mathematics courses to MAT 1033 in order to show the progression from secondary to post-secondary mathematics education.

MAT 1033 PROFILE DESCRIPTION	1207310: Liberal Arts Mathematics 2	1200700: Math for College Readiness	1200330: Algebra 2
FACTORING	A-APR.2.3 “Zeros of polynomials by factoring to construct rough graph.” A-SSE.1.2 “Use structure of expression to rewrite it.” A-SSE.2.3 a “Choose and produce equivalent form of expression to reveal properties: factor quadratic.”	A-APR.2.3 “Zeros of polynomials by factoring to construct rough graph.” A-SSE.1.2 “Use structure of expression to rewrite it.” A-SSE.2.3 a “Choose and produce equivalent form of expression to reveal properties: factor quadratic.”	A-APR.2.3 “Zeros of polynomials by factoring to construct rough graph.” A-SSE.1.2 “Use structure of expression to rewrite it.” A-SSE.2.3 a “Choose and produce equivalent form of expression to reveal properties: factor quadratic.”
ALGEBRAIC FRACTIONS	A-APR.2.2 “Know and apply Remainder Theorem.” A-APR.4.6 “Rewrite simple rational expressions.”	A-APR.4.6 “Rewrite simple rational expressions.” A-APR.4.7 “Operations on rational expressions.”	A-APR.2.2 “Know and apply Remainder Theorem.” A-APR.4.6 “Rewrite simple rational expressions.”
RADICALS & RATIONAL EXPONENTS	A-SSE.2.3 c “Choose and produce equivalent form of expression to reveal properties: properties of exponents.” F-IF.3.8 b “Write function to reveal properties: properties of exponents for exponential.” N-RN.1.1 “Explain definition of rational exponents from extending integer exponents.” N-RN.1.2 “Rewrite expressions involving radicals and rational exponents.”	8.EE.1.1 “Apply properties of integer exponents.” A-SSE.2.3 c “Choose and produce equivalent form of expression to reveal properties: properties of exponents.” F-IF.3.8 b “Write function to reveal properties: properties of exponents for exponential.” N-RN.1.1 “Explain definition of rational exponents from extending integer exponents.” N-RN.1.2 “Rewrite expressions involving radicals and rational exponents.”	A-SSE.2.3 c “Choose and produce equivalent form of expression to reveal properties: properties of exponents.” F-IF.3.8 b “Write function to reveal properties: properties of exponents for exponential.” N-RN.1.1 “Explain definition of rational exponents from extending integer exponents.” N-RN.1.2 “Rewrite expressions involving radicals and rational exponents.”
COMPLEX NUMBERS	N-CN.1.1 “Know there is a complex number I and in the form of a + bi.” N-CN.1.2 “Operations with complex numbers.”		N-CN.1.1 “Know there is a complex number I and in the form of a + bi.” N-CN.1.2 “Operations with complex numbers.”

***APPLICATION OF THE ABOVE TOPICS** included in topics where relevant

MAT 1033 PROFILE DESCRIPTION	1207310: Liberal Arts Mathematics 2	1200700: Math for College Readiness	1200330: Algebra 2
QUADRATIC EQUATIONS	A-REI.2.4 a-b "Solve quadratic equations." A-SSE.2.3 b "Choose and produce equivalent form of expression to reveal properties: complete the square." F-IF.3.7 a "Graph functions: quadratic." F-IF.3.8 a "Write function to reveal properties: quadratic." G-GPE.1.2 "Derive the equation of a parabola given focus and directrix." N-CN.3.7 "Solve quadratics that have complex solutions."	A-REI.2.4 a-b "Solve quadratic equations." A-SSE.2.3 b "Choose and produce equivalent form of expression to reveal properties: complete the square." F-IF.3.7 a "Graph functions: quadratic." F-IF.3.8 a "Write function to reveal properties: quadratic."	A-REI.2.4 a-b "Solve quadratic equations." A-SSE.2.3 b "Choose and produce equivalent form of expression to reveal properties: complete the square." F-IF.3.7 a "Graph functions: quadratic." F-IF.3.8 a "Write function to reveal properties: quadratic." G-GPE.1.2 "Derive the equation of a parabola given focus and directrix." N-CN.3.7 "Solve quadratics that have complex solutions."
RATIONAL EQUATIONS	F-IF.3.7 d "Graph functions: rational."	A-REI.1.2 "Solve simple rational and radical equations." F-IF.3.7 d "Graph functions: rational."	A-REI.1.2 "Solve simple rational and radical equations." F-IF.3.7 d "Graph functions: rational."
LINEAR EQUATIONS AND INEQUALITIES IN TWO-VARIABLES AND THEIR GRAPHS	F-IF.3.7 a "Graph functions: linear." G-GPE.2.5 "Prove slope for parallel and perpendicular lines."	8.EE.2.5 "Graph proportional relationships." 8.F.2.4 "Construct a function to model linear relationships." A-CED.1.2 "Create equations in two or more variables." A-CED.1.3 "Represent constraints by equations or inequalities." A-REI.2.3 "Solve linear equations and inequalities." F-IF.3.7 a "Graph functions: linear." G-GPE.2.5 "Prove slope for parallel and perpendicular lines." S-ID.3.7 "Interpret slope and intercept in context of data."	A-CED.1.2 "Create equations in two or more variables." A-CED.1.3 "Represent constraints by equations or inequalities." F-IF.3.7 a "Graph functions: linear."

*__APPLICATION OF THE ABOVE TOPICS__ included in topics where relevant

MAT 1033 PROFILE DESCRIPTION	1207310: Liberal Arts Mathematics 2	1200700: Math for College Readiness	1200330: Algebra 2
SYSTEMS OF LINEAR FUNCTIONS AND INEQUALITIES	A-REI.3.7 "Solve simple system of linear and quadratic equations."	A-REI.3.5 "Prove systems of equations." A-REI.3.6 "Solve systems of equations." A-REI.4.11 "Explain why intersection of graphs is solutions of f(x)=g(x)."	A-REI.3.6 "Solve systems of equations." A-REI.3.7 "Solve simple system of linear and quadratic equations." A-REI.4.11 "Explain why intersection of graphs is solutions of f(x)=g(x)."
INTRODUCTION TO FUNCTIONS	F-IF.3.7 b, c, e "Graph functions: radical, absolute value, polynomial, exponential, logarithmic." F-IF.3.9 "Compare properties of two functions." F-LE.1.2 "Construct linear and exponential functions (arithmetic & geometric sequences)." F-LE.1.3 "Observe using graphs and tables that increasing exponentially eventually exceeds linear, quadratic, polynomial."	A-REI.4.10 "Understand that graph of equation is set all solutions." F-BF.1.1 a-c "Write a function that describes relationship between two quantities: recursive, operations on functions, composition of functions." F-BF.2.3 "Identify the effect on graph through transformations." F-IF.1.1 "Understand function from domain to one element of range." F-IF.2.4 "Interpret key features of graph and table and sketch graphs." F-IF.2.5 "Relate domain to its graph and relationship it describes." F-IF.2.6 "Average rate of change." F-IF.3.7 b, c, e "Graph functions: radical, absolute value, polynomial, exponential, logarithmic."	F-BF.1.1 a-c "Write a function that describes relationship between two quantities: recursive, operations on functions, composition of functions." F-BF.2.3 "Identify the effect on graph through transformations." F-BF.2.4 a-d "Find inverse functions." F-IF.2.4 "Interpret key features of graph and table and sketch graphs." F-IF.2.5 "Relate domain to its graph and relationship it describes." F-IF.2.6 "Average rate of change." F-IF.3.7 b, c, e "Graph functions: radical, absolute value, polynomial, exponential, logarithmic." F-IF.3.9 "Compare properties of two functions."

*__APPLICATION OF THE ABOVE TOPICS__ included in topics where relevant

MAT 1033 PROFILE DESCRIPTION	1207310: Liberal Arts Mathematics 2	1200700: Math for College Readiness	1200330: Algebra 2
STANDARDS THAT ALIGN TO MULTIPLE OBJECTIVES	F-LE.1.1 "Distinguish between situations that can be modeled with linear/exponential functions." F-LE.2.5 "Interpret parameters in linear and exponential functions in terms of context."	7.EE.2.4 a-b "Write and solve simple equations and inequalities." 8.NS.1.2 "Use rational approximations of irrational numbers." A-SSE.1.1 a-b "Interpret expressions in terms of context." A-APR.1.1 "Operations on polynomials." A-CED.1.1 "Create equations and inequalities in one variable (linear, quadratic, rational, absolute value, exponential)." N-Q.1.1 "Use units to understand problems and to guide solutions." N-Q.1.2 "Define appropriate quantities." N-Q.1.3 "Choose level accuracy appropriate to limitations."	A-APR.1.1 "Operations on polynomials." A-CED.1.1 "Create equations and inequalities in one variable (linear, quadratic, rational, absolute value, exponential)." A-SSE.1.1 a-b "Interpret expressions in terms of context." F-BF.1.2 "Write arithmetic and geometric sequences recursively and explicitly." F-LE.2.5 "Interpret parameters in linear and exponential functions in terms of context." N-Q.1.2 "Define appropriate quantities."
PRIOR KNOWLEDGE STANDARDS	N-RN.2.3 "Explain why operations on rational/irrational result in rational/irrational number."	7.NS.1.1 a-b "Add and subtract rational numbers." 7.NS.1.2 a-d "Multiply and divide rational numbers." 8.NS.1.1 "Irrational numbers." 8.EE.1.4 "Scientific notation." A-CED.1.4 "Rearrange formulas." A-REI.1.1 "Explain each step in solving simple equation." N-RN.2.3 "Explain why operations on rational/irrational result in rational/irrational number."	A-CED.1.4 "Rearrange formulas." A-REI.1.1 "Explain each step in solving simple equation."

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MAT 1033 PROFILE DESCRIPTION	1207310: Liberal Arts Mathematics 2	1200700: Math for College Readiness	1200330: Algebra 2
EXTENDED KNOWLEDGE STANDARDS	A-APR.3.4 "Prove polynomial identities." A-SSE.2.4 "Derive the formula for sum of finite geometric series." F-LE.1.4 "For exponential models, express as logarithm to find solution." G-GPE.1.1 "Derive the equation of a circle." G-GPE.2.4 "Use coordinates to prove simple geometric theorems algebraically." S-CP.1.4 "Construct and interpret two-way frequency tables." S-CP.1.5 "Recognize and explain conditional probability." S-IC.1.1 "Understand statistics as process for making inferences." S-IC.1.2 "Decide if model is consistent with results." S-IC.2.3 "Recognize the purpose/differences of survey, experiment, observational studies." S-IC.2.4 "Use data from sample survey to estimate population." S-IC.2.5 "Use data from experiment to compare treatments." S-IC.2.6 "Evaluate reports based on data."	A-APR.3.4 "Prove polynomial identities." G-GPE.2.6 "Find point on line between two given points in given ratio." G-GPE.2.7 "Use coordinates to compute perimeters/areas of polygons." S-ID.2.5 "Summarize categorical data in two-way frequency table." S-ID.2.6 "Represent data on scatter plot."	A-APR.3.4 "Prove polynomial identities." A-SSE.2.4 "Derive the formula for sum of finite geometric series." F-BF.2.a "Use change of base formula." F-LE.1.4 "For exponential models, express as logarithm to find solution." F-TF.1.1 "Understand radian measure of an angle on unit circle and convert between degrees and radians." F-TF.1.2 "Explain how coordinates on unit circle enables extension of trig functions." F-TF.2.5 "Choose trig functions to model periodic phenomena." F-TF.3.8 "Prove Pythagorean identity and use to calculate trig ratios." S-CP.1.1 "Describe events as subset of sample space using categories of outcomes (union, intersection, complement)." S-CP.1.2 "Understand probability of independent events." S-CP.1.3 "Understand conditional probability." S-CP.1.4 "Construct and interpret two-way frequency tables." S-CP.1.5 "Recognize and explain conditional probability." S-CP.2.6 "Find conditional probability." S-CP.2.7 "Apply the Addition Rule." S-IC.1.1 "Understand statistics as process for making inferences." S-IC.1.2 "Decide if model is consistent with results." S-IC.2.3 "Recognize the purpose/differences of survey, experiment, observational studies." S-IC.2.4 "Use data from sample survey to estimate population." S-IC.2.5 "Use data from experiment to compare treatments." S-IC.2.6 "Evaluate reports based on data." S-ID.1.4 "Use mean and standard deviation to fit it to normal distribution to estimate population percentages."

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The objective of this table is to align various high school mathematics courses to STA 2023 in order to show the progression from secondary to post-secondary mathematics education.

STA 2023 PROFILE DESCRIPTION	1207310: Liberal Arts Mathematics 2	1210300: Probability and Statistics with Applications Honors	1200330: Algebra 2
RANDOM VARIABLES		S-MD.1.1 "Define random variable a value to each event in sample space." S-MD.1.2 "Calculate the expected value and interpret it as mean of distribution." S-MD.1.3 "Develop a probability distribution in which theoretical probabilities can be calculated." S-MD.1.4 "Develop a probability distribution which probabilities assigned empirically."	
PROBABILITY	S-CP.1.5 "Recognize and explain conditional probability."	S-CP.1.2 "Understand probability of independent events." S-CP.1.3 "Understand conditional probability." S-CP.1.5 "Recognize and explain conditional probability." S-CP.2.6 "Find conditional probability." S-CP.2.7 "Apply the Addition Rule." S-CP.2.8 "Apply the general Multiplication Rule." S-CP.2.9 "Use permutations and combinations." S-MD.2.5 "Weigh possible outcomes of decision and find expected values." S-MD.2.6 "Use probability to make fair decisions." S-MD.2.7 "Analyze decisions and strategies using probability concepts."	S-CP.1.2 "Understand probability of independent events." S-CP.1.3 "Understand conditional probability." S-CP.1.5 "Recognize and explain conditional probability." S-CP.2.6 "Find conditional probability." S-CP.2.7 "Apply the Addition Rule."

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STA 2023 PROFILE DESCRIPTION	1207310: Liberal Arts Mathematics 2	1210300: Probability and Statistics with Applications Honors	1200330: Algebra 2
HYPOTHESIS TESTING			
CONFIDENCE INTERVAL ESTIMATION			
SMALL SAMPLE METHODS			
CORRELATION		S-ID.3.8 “Compute and interpret the correlation coefficient.” S-ID.3.9 “Distinguish between correlation and causation.”	
SIMPLE LINEAR REGRESSION		S-ID.2.6 “Represent data on scatter plot, and describe how the variables are related.” S-ID.3.7 “Interpret rate of change and constant term of linear model in context of data.”	
NONPARAMETRIC STATISTICS			
STANDARDS THAT ALIGN TO MULTIPLE OBJECTIVES	S-IC.1.1 “Understand statistics as process for making inferences.” S-IC.1.2 “Decide if model is consistent with results.” S-IC.2.4 “Use data from sample survey to estimate population.” S-IC.2.5 “Use data from experiment to compare treatments.” S-IC.2.6 “Evaluate reports based on data.”	S-IC.1.1 “Understand statistics as process for making inferences.” S-IC.1.2 “Decide if model is consistent with results.” S-IC.2.4 “Use data from sample survey to estimate population.” S-IC.2.5 “Use data from experiment to compare treatments.” S-IC.2.6 “Evaluate reports based on data.”S-	N-Q.1.2 “Define appropriate quantities.”

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STA 2023 PROFILE DESCRIPTION	1207310: Liberal Arts Mathematics 2	1210300: Probability and Statistics with Applications Honors	1200330: Algebra 2
PRIOR KNOWLEDGE STANDARDS	S-CP.1.4 "Construct and interpret two-way frequency tables." S-IC.2.3 "Recognize the purpose/differences of survey, experiment, observational studies."	S-IC.2.3 "Recognize the purpose/differences of survey, experiment, observational studies." S-ID.1.1 "Represent data on the real number line (dot plots, box plots, histograms)." S-ID.1.2 "Compare center and spread of two or more different data sets." S-ID.1.3 "Interpret differences in shape, center, and spread of data sets, accounting for extreme data points." S-ID.1.4 "Use mean and standard deviation to fit normal distribution and estimate population percentages."S-CP.1.4 "Construct and interpret two-way frequency tables." S-ID.2.5 "Summarize categorical data into two-way frequency table and interpret relative frequencies." S-CP.1.1 "Describe events as subset of sample space using categories of outcomes (union, intersection, complement)."	S-CP.1.1 "Describe events as subset of sample space using categories of outcomes (union, intersection, complement)." S-CP.1.4 "Construct and interpret two-way frequency tables." S-IC.1.1 "Understand statistics as process for making inferences." S-IC.1.2 "Decide if model is consistent with results." S-IC.2.3 "Recognize the purpose/differences of survey, experiment, observational studies." S-IC.2.4 "Use data from sample survey to estimate population." S-IC.2.5 "Use data from experiment to compare treatments." S-IC.2.6 "Evaluate reports based on data." S-ID.1.4 "Use mean and standard deviation to fit it to normal distribution to estimate population percentages."

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STA 2023 PROFILE DESCRIPTION	1207310: Liberal Arts Mathematics 2	1210300: Probability and Statistics with Applications Honors	1200330: Algebra 2
EXTENDED KNOWLEDGE STANDARDS	N-RN.2.3 “Explain why operations on rational/irrational result in rational/irrational number.” G-GPE.1.1 “Derive the equation of a circle.” G-GPE.2.4 “Use coordinates to prove simple geometric theorems algebraically.” A-APR.2.3 “Zeros of polynomials by factoring to construct rough graph.” A-SSE.1.2 “Use structure of expression to rewrite it.” A-SSE.2.3 a “Choose and produce equivalent form of expression to reveal properties: factor quadratic.”A-APR.3.4 “Prove polynomial identities.” A-SSE.2.4 “Derive the formula for sum of finite geometric series.” F-LE.1.1 “Distinguish between situations that can be modeled with linear/exponential functions.” F-LE.2.5 “Interpret parameters in linear and exponential functions in terms of context.” F-LE.1.4 “For exponential models, express as logarithm to find solution.” F-IF.3.7 a “Graph functions: linear.” F-IF.3.7 d “Graph functions: rational.” G-GPE.2.5 “Prove slope for parallel and perpendicular lines.” A-APR.2.2 “Know and apply Remainder Theorem.” A-APR.4.6 “Rewrite simple rational expressions.”		A-CED.1.4 “Rearrange formulas.” A-REI.1.1 “Explain each step in solving simple equation.” A-SSE.2.3 c “Choose and produce equivalent form of expression to reveal properties: properties of exponents.” F-IF.3.8 b “Write function to reveal properties: properties of exponents for exponential.” N-RN.1.1 “Explain definition of rational exponents from extending integer exponents.” N-RN.1.2 “Rewrite expressions involving radicals and rational exponents.” A-APR.2.2 “Know and apply Remainder Theorem.” A-APR.4.6 “Rewrite simple rational expressions.” A-APR.2.3 “Zeros of polynomials by factoring to construct rough graph.” A-SSE.1.2 “Use structure of expression to rewrite it.” A-SSE.2.3 a “Choose and produce equivalent form of expression to reveal properties: factor quadratic.”A-APR.1.1 “Operations on polynomials.” A-CED.1.2 “Create equations in two or more variables.” A-CED.1.3 “Represent constraints by equations or inequalities.” F-IF.3.7 a “Graph functions: linear.” A-REI.2.4 a-b “Solve quadratic equations.” A-SSE.2.3 b “Choose and produce equivalent form of expression to reveal properties: complete the square.” F-IF.3.7 a “Graph functions: quadratic.”

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	A-SSE.2.3 c “Choose and produce equivalent form of expression to reveal properties: properties of exponents.” F-IF.3.8 b “Write function to reveal properties: properties of exponents for exponential.” N-RN.1.1 “Explain definition of rational exponents from extending integer exponents.” N-RN.1.2 “Rewrite expressions involving radicals and rational exponents.” N-CN.1.1 “Know there is a complex number I and in the form of a + bi.” N-CN.1.2 “Operations with complex numbers.” A-REI.2.4 a-b “Solve quadratic equations.” A-SSE.2.3 b “Choose and produce equivalent form of expression to reveal properties: complete the square.” F-IF.3.7 a “Graph functions: quadratic.” F-IF.3.8 a “Write function to reveal properties: quadratic.” G-GPE.1.2 “Derive the equation of a parabola given focus and directrix.” N-CN.3.7 “Solve quadratics that have complex solutions.”		F-IF.3.8 a “Write function to reveal properties: quadratic.” G-GPE.1.2 “Derive the equation of a parabola given focus and directrix.” N-CN.1.1 “Know there is a complex number I and in the form of a + bi.” N-CN.1.2 “Operations with complex numbers.” N-CN.3.7 “Solve quadratics that have complex solutions.” A-REI.1.2 “Solve simple rational and radical equations.” F-IF.3.7 d “Graph functions: rational.” A-CED.1.1 “Create equations and inequalities in one variable (linear, quadratic, rational, absolute value, exponential).” A-SSE.1.1 a-b “Interpret expressions in terms of context.” F-BF.1.2 “Write arithmetic and geometric sequences recursively and explicitly.” F-LE.2.5 “Interpret parameters in linear and exponential functions in terms of context.” A-APR.3.4 “Prove polynomial identities.” A-SSE.2.4 “Derive the formula for sum of finite geometric series.” F-BF.2.a “Use change of base formula.” F-LE.1.4 “For exponential models, express as logarithm to find solution.” F-TF.1.1 “Understand radian measure of an angle on unit circle and convert between degrees and radians.” F-TF.1.2 “Explain how coordinates on unit circle enables extension of trig functions.” F-TF.2.5 “Choose trig functions to model periodic phenomena.” F-TF.3.8 “Prove Pythagorean identity and use to calculate trig ratios.”

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