

Course SLOs aligned with Program SLOs

San Mateo CCCD

CAN Program - Math

Students will use mathematical reasoning to solve problems and a generalized problem solving process to solve real-world problems.

CAN Dept - Mathematics

CAN MATH 110 - Elementary Algebra

Course Outcomes:

- * Applying and Solving Quadratic and Rational Equations - 4. Construct and solve quadratic and rational equations to model a given application.
 - a. Apply factoring techniques to solve quadratic equations.
 - b. Use appropriate methods to solve rational equations.
 - c. Verify that solutions comply with any constraints in the model.
 - d. Model and solve word problems whose solutions require formulating one variable quadratic or rational equations.(Created By CAN Dept - Mathematics)
- * Systems of Equations - 5. Solve a two by two system of linear equations.
 - a. Identify the different types of systems and their graphical interpretations.
 - b. Use different methods to solve a system of two linear equations.(Created By CAN Dept - Mathematics)

CAN MATH 111 - Elementary Algebra I

Course Outcomes:

- * Apply and Solve linear Equations - 1. Solve linear algebraic equations and inequalities that model a given application.
 - a. Translate a statement into an appropriate one-variable linear equation or inequality.
 - b. Use appropriate strategies to find the solutions.
 - c. Model and solve word problems whose solutions require formulating one variable linear equations.(Created By CAN Dept - Mathematics)
- * Linear Graphs - 2. Construct and analyze a linear graph in a Cartesian coordinate system.
 - a. Use different methods to graph a two-variable linear equation.
 - b. Interpret the graph.(Created By CAN Dept - Mathematics)

CAN MATH 112 - Elementary Algebra II

Course Outcomes:

- * Apply and Solve Quadratic and Rational Equations - 2. Construct and solve quadratic and rational equations to model a given application.
 - a. Apply factoring techniques to solve quadratic equations.
 - b. Use appropriate methods to solve rational equations.
 - c. Verify that solutions comply with any constraints in the model.
 - d. Model and solve word problems whose solutions require formulating one variable quadratic or rational equations.(Created By CAN Dept - Mathematics)
- * Systems of Equations - 3. Solve a two by two system of linear equations.
 - a. Identify the different types of systems and their graphical interpretations.
 - b. Use different methods to solve a system of two linear equations.(Created By CAN Dept - Mathematics)

CAN MATH 115 - Geometry

Course Outcomes:

- * Proof - Complete a two column proof, a proof using inductive reasoning, or a proof by contradiction (Created By CAN Dept - Mathematics)
- * Volumes and areas - Calculate the volumes or areas for geometric solids or plan figures (Created By CAN Dept - Mathematics)

CAN MATH 120 - Intermediate Algebra

Course Outcomes:

- * Analyze and solve equations - Analyze and solve quadratic, exponential, and logarithmic equations. (Created By CAN Dept - Mathematics)
- * Graph and analyze functions - Graph and analyze linear, quadratic, exponential, and logarithmic functions. (Created By CAN Dept - Mathematics)
- * Using equations to model - 1: Write and solve linear, quadratic, exponential, and logarithmic equations and inequalities that model a given application. (Created By CAN Dept - Mathematics)

CAN MATH 122 - Intermediate Algebra I

Course Outcomes:

- * Exponential and logarithmic equations - Analyze and solve exponential and logarithmic equations (Created By CAN Dept - Mathematics)

- * Graph - Graph and analyze linear, exponential, and logarithmic functions. (Created By CAN Dept - Mathematics)
- * Solve Equations - Write and solve linear, exponential, and logarithmic equations and inequalities that model a given application. (Created By CAN Dept - Mathematics)

CAN MATH 123 - Intermediate Algebra II

Course Outcomes:

- * Solve proportion and variation problems - Solve and interpret applications involving proportions and variation (Created By CAN Dept - Mathematics)

CAN MATH 125 - Elementary Finite Mathematics

Course Outcomes:

- * Financial - Use the simple interest, compound interest, future value, and present value formulas to solve financial problems (Created By CAN Dept - Mathematics)
- * Probability - Find expected values of a random variable (Created By CAN Dept - Mathematics)
- * Simplex method - Use the simplex method to solve a standard maximization problem (Created By CAN Dept - Mathematics)

CAN MATH 130 - Analytical Trigonometry

Course Outcomes:

- * Modeling periodic behavior - Use Trigonometric functions to model periodic behavior. (Created By CAN Dept - Mathematics)
- * Solve Triangles - Solve triangles using the definitions of the trigonometric functions, the law of sines, or the law of cosines. (Created By CAN Dept - Mathematics)

CAN MATH 140 - Math For Gen Education

Course Outcomes:

- * Probability and Statistics - Demonstrate a knowledge of probability and statistics by solving a variety of counting problems, by calculating the probability of games of chance, and by analyzing statistical data. (Created By CAN Dept - Mathematics)
- * problem solving - Apply mathematical principles and techniques to solve problems in areas such as systems of numeration, algebraic modeling, basic trigonometry, probability, statistics, and math of finance. (Created By CAN Dept - Mathematics)

CAN MATH 200 - Elem Probability & Statistics

Course Outcomes:

- * Central tendency and variation - Compute measures of central tendency and variation (Created By CAN Dept - Mathematics)
- * Hypothesis testing - Given an inferential statistics problem, identify the appropriate hypothesis test, perform the hypothesis test, and interpret the results. (Created By CAN Dept - Mathematics)
- * Plots - Plot histogram, scatter plot, box plot (Created By CAN Dept - Mathematics)
- * Probability - Identify and apply the basic laws of probability such as complements, independence, and the role of probability in statistics (Created By CAN Dept - Mathematics)

CAN MATH 222 - Pre-Calculus Col Algebra/Trig

Course Outcomes:

- * polynomial and rational functions - Describe the short run and long run behavior of polynomial and rational functions. (Created By CAN Dept - Mathematics)

CAN MATH 241 - Applied Calculus I

Course Outcomes:

- * Antiderivatives - Find and apply the antiderivative of a function (Created By CAN Dept - Mathematics)
- * Derivatives - Find and interpret the derivatives of polynomial, rational, piecewise defined, exponential, and logarithmic functions including those requiring the product, quotient, and chain rules (Created By CAN Dept - Mathematics)
- * Extrema and optimization - Find and apply relative extrema, absolute extrema, and points of inflection. (Created By CAN Dept - Mathematics)
- * Integrals - Evaluate and apply definite integrals (Created By CAN Dept - Mathematics)
- * Related Rates - Solve related rates problems (Created By CAN Dept - Mathematics)

CAN MATH 242 - Applied Calculus II

Course Outcomes:

- * Calculus with Trig functions - Evaluate and apply the derivatives and integrals involving the sine and cosine functions. (Created By CAN Dept - Mathematics)
- * Differential Equations - Solve separable and first order linear differential equations (Created By CAN Dept - Mathematics)
- * Numerical methods of integration - Use a graphing calculator and numerical methods (left hand sum, right hand sum, midpoint rule, trapezoid rule, and Simpson's rule) to approximate integrals. (Created By CAN Dept - Mathematics)
- * Optimization - Use the second derivative test for 2 variables and Lagrange multipliers to optimize functions of 2 or more variables. (Created By CAN Dept - Mathematics)

* Partial Derivatives - Find and Interpret partial derivatives (Created By CAN Dept - Mathematics)

CAN MATH 251 - Calculus/Analytic Geometry I

Course Outcomes:

- * apply derivatives - Apply derivatives to related rates and optimization problems. (Created By CAN Dept - Mathematics)
- * define/interpret derivatives - Interpret derivatives of functions from a numerical, graphical, and symbolic point of view. (Created By CAN Dept - Mathematics)

CAN MATH 252 - Calculus/Analytic Geometry II

Course Outcomes:

- * integrals - Relate Integrals to anti-derivatives, limits of the Riemann sums, and areas under a curve. (Created By CAN Dept - Mathematics)

CAN MATH 253 - Calculus/Analytic Geometry III

Course Outcomes:

- * ftoC - Recognize and apply the fundamental theorem of calculus. (Created By CAN Dept - Mathematics)
- * integrals - Identify and compute the different types of integrals. (Created By CAN Dept - Mathematics)
- * partial derivatives - Compute derivatives of multivariable functions and apply to geometry and optimization problems.
(Created By CAN Dept - Mathematics)
- * vectors-valued functions - Model motion using vectors valued functions. (Created By CAN Dept - Mathematics)

CAN MATH 270 - Linear Algebra

Course Outcomes:

- * systems via matrices - Correctly solve a system of equations using matrices and Gaussian elimination. (Created By CAN Dept - Mathematics)

CAN MATH 275 - Ordinary Differential Equation

Course Outcomes:

- * Develop Models - Correctly develop a differential equation to model a particular situation. (Created By CAN Dept - Mathematics)
- * Initial value problems - Use standard methods (integrating factors, undetermined coefficients, variation of parameters, Laplace Transforms, numerical methods, power series) to find a solution to an initial-value problem.
(Created By CAN Dept - Mathematics)

CAN MATH 811 - Pre-Algebra

Course Outcomes:

- * percentages - Solve problems involving percentages. (Created By CAN Dept - Mathematics)
- * proportions - Set up and solve proportion problems. (Created By CAN Dept - Mathematics)
- * word problem - Translate verbal expressions into math and solve. (Created By CAN Dept - Mathematics)

CAN MATH 818 - Basic Mathematics for Health Science

Course Outcomes:

- * stats - Compute basic descriptive statistics: Mean, Standard Deviation, and Coefficient of Variation (Created By CAN Dept - Mathematics)
- * units - Perform unit conversions (Created By CAN Dept - Mathematics)

Students will demonstrate the ability to use symbolic, graphical, numerical, and written representations of mathematical ideas.

CAN Dept - Mathematics

CAN MATH 110 - Elementary Algebra

Course Outcomes:

- * Applying and Solving Quadratic and Rational Equations - 4. Construct and solve quadratic and rational equations to model a given application.
 - Apply factoring techniques to solve quadratic equations.
 - Use appropriate methods to solve rational equations.
 - Verify that solutions comply with any constraints in the model.
 - Model and solve word problems whose solutions require formulating one variable quadratic or rational equations.
(Created By CAN Dept - Mathematics)
- * Graphing Lines - 3. Construct and analyze a linear graph in a Cartesian coordinate system.
 - Use different methods to graph a two-variable linear equation.
 - Interpret the graph.

(Created By CAN Dept - Mathematics)

- * Simplify Polynomials and Rational Expressions - 2. Simplify polynomials, and rational expressions.
 - a. Use appropriate techniques to multiply, divide, add, and subtract polynomials and rational expressions.
 - b. Simplify expressions with integer exponents.(Created By CAN Dept - Mathematics)
- * Solve Linear Equations - 1. Solve linear algebraic equations and inequalities that model a given application.
 - a. Translate a statement into an appropriate one-variable linear equation or inequality.
 - b. Use appropriate strategies to find the solutions.
 - c. Model and solve word problems whose solutions require formulating one variable linear equations.(Created By CAN Dept - Mathematics)
- * Systems of Equations - 5. Solve a two by two system of linear equations.
 - a. Identify the different types of systems and their graphical interpretations.
 - b. Use different methods to solve a system of two linear equations.(Created By CAN Dept - Mathematics)

CAN MATH 111 - Elementary Algebra I

Course Outcomes:

- * Apply and Solve linear Equations - 1. Solve linear algebraic equations and inequalities that model a given application.
 - a. Translate a statement into an appropriate one-variable linear equation or inequality.
 - b. Use appropriate strategies to find the solutions.
 - c. Model and solve word problems whose solutions require formulating one variable linear equations.(Created By CAN Dept - Mathematics)
- * Linear Graphs - 2. Construct and analyze a linear graph in a Cartesian coordinate system.
 - a. Use different methods to graph a two-variable linear equation.
 - b. Interpret the graph.(Created By CAN Dept - Mathematics)

CAN MATH 112 - Elementary Algebra II

Course Outcomes:

- * Apply and Solve Quadratic and Rational Equations - 2. Construct and solve quadratic and rational equations to model a given application.
 - a. Apply factoring techniques to solve quadratic equations.
 - b. Use appropriate methods to solve rational equations.
 - c. Verify that solutions comply with any constraints in the model.
 - d. Model and solve word problems whose solutions require formulating one variable quadratic or rational equations.(Created By CAN Dept - Mathematics)
- * Simplify Polynomials and Rational Expressions - 1. Simplify polynomials, and rational expressions.
 - a. Use appropriate techniques to multiply, divide, add, and subtract polynomials and rational expressions.
 - b. Simplify expressions with integer exponents.(Created By CAN Dept - Mathematics)
- * Systems of Equations - 3. Solve a two by two system of linear equations.
 - a. Identify the different types of systems and their graphical interpretations.
 - b. Use different methods to solve a system of two linear equations.(Created By CAN Dept - Mathematics)

CAN MATH 115 - Geometry

Course Outcomes:

- * Angles and Triangles - Solve problems using the theorems and postulates for angles and triangles (Created By CAN Dept - Mathematics)
- * Proof - Complete a two column proof, a proof using inductive reasoning, or a proof by contradiction (Created By CAN Dept - Mathematics)
- * Volumes and areas - Calculate the volumes or areas for geometric solids or plan figures (Created By CAN Dept - Mathematics)

CAN MATH 120 - Intermediate Algebra

Course Outcomes:

- * Analyze and solve equations - Analyze and solve quadratic, exponential, and logarithmic equations. (Created By CAN Dept - Mathematics)
- * Graph and analyze functions - Graph and analyze linear, quadratic, exponential, and logarithmic functions. (Created By CAN Dept - Mathematics)
- * Use and interpret function notation - Use and interpret function notation in algebraic, numerical, verbal, and graphical contexts. (Created By CAN Dept - Mathematics)
- * Using equations to model - 1: Write and solve linear, quadratic, exponential, and logarithmic equations and inequalities that model a given application. (Created By CAN Dept - Mathematics)

CAN MATH 122 - Intermediate Algebra I

Course Outcomes:

- * Exponential and logarithmic equations - Analyze and solve exponential and logarithmic equations (Created By CAN Dept - Mathematics)
- * Graph - Graph and analyze linear, exponential, and logarithmic functions. (Created By CAN Dept - Mathematics)

- * Solve Equations - Write and solve linear, exponential, and logarithmic equations and inequalities that model a given application. (Created By CAN Dept - Mathematics)
- * Use and interpret function notation - Use and interpret function notation in algebraic, numerical, verbal, and graphical contexts. (Created By CAN Dept - Mathematics)

CAN MATH 123 - Intermediate Algebra II

Course Outcomes:

- * Simplify expressions - Simplify and perform operations with rational and radical equations (Created By CAN Dept - Mathematics)
- * Solve equations - Solve rational, radical, and absolute value equations (Created By CAN Dept - Mathematics)
- * Solve proportion and variation problems - Solve and interpret applications involving proportions and variation (Created By CAN Dept - Mathematics)

CAN MATH 125 - Elementary Finite Mathematics

Course Outcomes:

- * Counting - Use counting methods to solve probability problems (Created By CAN Dept - Mathematics)
- * Financial - Use the simple interest, compound interest, future value, and present value formulas to solve financial problems (Created By CAN Dept - Mathematics)
- * Matrices - Solve a system of equations using matrices and row operations (Created By CAN Dept - Mathematics)
- * Probability - Find expected values of a random variable (Created By CAN Dept - Mathematics)
- * Simplex method - Use the simplex method to solve a standard maximization problem (Created By CAN Dept - Mathematics)

CAN MATH 130 - Analytical Trigonometry

Course Outcomes:

- * Graphs - Produce and interpret graphs of the six trigonometric functions including transformations (Created By CAN Dept - Mathematics)
- * Identities - Use algebra and identities to derive or verify identities. (Created By CAN Dept - Mathematics)
- * Modeling periodic behavior - Use Trigonometric functions to model periodic behavior. (Created By CAN Dept - Mathematics)
- * Six Trig functions - State and apply correctly the various definitions, values for key angles, and basic identities for the six trigonometric functions. (Created By CAN Dept - Mathematics)
- * Solve Triangles - Solve triangles using the definitions of the trigonometric functions, the law of sines, or the law of cosines. (Created By CAN Dept - Mathematics)
- * Trig equations - Use algebra and identities to solve trigonometric equations. (Created By CAN Dept - Mathematics)

CAN MATH 140 - Math For Gen Education

Course Outcomes:

- * History - Relate a knowledge of the people, history and uses of mathematics through research papers, projects, presentations, and class discussions. (Created By CAN Dept - Mathematics)
- * Logic - Use critical thinking to arrive at conclusions from Venn Diagrams, syllogistic forms, and truth tables. (Created By CAN Dept - Mathematics)
- * Probability and Statistics - Demonstrate a knowledge of probability and statistics by solving a variety of counting problems, by calculating the probability of games of chance, and by analyzing statistical data. (Created By CAN Dept - Mathematics)
- * problem solving - Apply mathematical principles and techniques to solve problems in areas such as systems of numeration, algebraic modeling, basic trigonometry, probability, statistics, and math of finance. (Created By CAN Dept - Mathematics)

CAN MATH 200 - Elem Probability & Statistics

Course Outcomes:

- * Central tendency and variation - Compute measures of central tendency and variation (Created By CAN Dept - Mathematics)
- * Hypothesis testing - Given an inferential statistics problem, identify the appropriate hypothesis test, perform the hypothesis test, and interpret the results. (Created By CAN Dept - Mathematics)
- * Plots - Plot histogram, scatter plot, box plot (Created By CAN Dept - Mathematics)
- * Probability - Identify and apply the basic laws of probability such as complements, independence, and the role of probability in statistics (Created By CAN Dept - Mathematics)
- * Terminology - Define statistical terms. (Created By CAN Dept - Mathematics)

CAN MATH 222 - Pre-Calculus Col Algebra/Trig

Course Outcomes:

- * polynomial and rational functions - Describe the short run and long run behavior of polynomial and rational functions. (Created By CAN Dept - Mathematics)
- * recognize functions - Recognize and classify a function from an equation, graph, or table (Created By CAN Dept - Mathematics)
- * transformations - Identify and apply transformations to functions and graphs, including vertical and horizontal shifts, reflections, and scaling. (Created By CAN Dept - Mathematics)

CAN MATH 241 - Applied Calculus I

Course Outcomes:

- * Antiderivatives - Find and apply the antiderivative of a function (Created By CAN Dept - Mathematics)
- * Derivatives - Find and interpret the derivatives of polynomial, rational, piecewise defined, exponential, and logarithmic functions including those requiring the product, quotient, and chain rules (Created By CAN Dept - Mathematics)
- * Extrema and optimization - Find and apply relative extrema, absolute extrema, and points of inflection. (Created By CAN Dept - Mathematics)
- * Functions and notations - State and apply correctly the definitions of a function, the domain, and the range for equations, tables, or graphs representing polynomial, rational, piecewise defined, exponential, and logarithmic functions (Created By CAN Dept - Mathematics)
- * Integrals - Evaluate and apply definite integrals (Created By CAN Dept - Mathematics)
- * Related Rates - Solve related rates problems (Created By CAN Dept - Mathematics)

CAN MATH 242 - Applied Calculus II

Course Outcomes:

- * Calculus with Trig functions - Evaluate and apply the derivatives and integrals involving the sine and cosine functions. (Created By CAN Dept - Mathematics)
- * Differential Equations - Solve separable and first order linear differential equations (Created By CAN Dept - Mathematics)
- * Numerical methods of integration - Use a graphing calculator and numerical methods (left hand sum, right hand sum, midpoint rule, trapezoid rule, and Simpson's rule) to approximate integrals. (Created By CAN Dept - Mathematics)
- * Optimization - Use the second derivative test for 2 variables and Lagrange multipliers to optimize functions of 2 or more variables. (Created By CAN Dept - Mathematics)
- * Partial Derivatives - Find and Interpret partial derivatives (Created By CAN Dept - Mathematics)
- * Techniques of integration - Apply the techniques of substitution, integration by parts, and integration tables to evaluate integrals (Created By CAN Dept - Mathematics)

CAN MATH 251 - Calculus/Analytic Geometry I

Course Outcomes:

- * apply derivatives - Apply derivatives to related rates and optimization problems. (Created By CAN Dept - Mathematics)
- * compute derivatives - Compute derivatives numerically, graphically, and symbolically for explicitly defined functions. (Created By CAN Dept - Mathematics)
- * define/interpret derivatives - Interpret derivatives of functions from a numerical, graphical, and symbolic point of view. (Created By CAN Dept - Mathematics)

CAN MATH 252 - Calculus/Analytic Geometry II

Course Outcomes:

- * convergence of improper integrals - Analyze the convergence of improper integrals and evaluate them where possible. (Created By CAN Dept - Mathematics)
- * convergence of series - Analyze the convergence of series evaluate them where possible. (Created By CAN Dept - Mathematics)
- * integrals - Relate Integrals to anti-derivatives, limits of the Riemann sums, and areas under a curve. (Created By CAN Dept - Mathematics)
- * integration techniques - Use different techniques of integration to evaluate indefinite and definite integrals (Created By CAN Dept - Mathematics)

CAN MATH 253 - Calculus/Analytic Geometry III

Course Outcomes:

- * ftoc - Recognize and apply the fundamental theorem of calculus. (Created By CAN Dept - Mathematics)
- * integrals - Identify and compute the different types of integrals. (Created By CAN Dept - Mathematics)
- * partial derivatives - Compute derivatives of multivariable functions and apply to geometry and optimization problems.
(Created By CAN Dept - Mathematics)
- * vectors-valued functions - Model motion using vectors valued functions. (Created By CAN Dept - Mathematics)

CAN MATH 270 - Linear Algebra

Course Outcomes:

- * eigenvectors and eigenvalues - Correctly find the eigenvectors and eigenvalues of a matrix. (Created By CAN Dept - Mathematics)
- * systems via matrices - Correctly solve a system of equations using matrices and Gaussian elimination. (Created By CAN Dept - Mathematics)
- * vectors - Correctly use vectors to solve a problem. (Created By CAN Dept - Mathematics)

CAN MATH 275 - Ordinary Differential Equation

Course Outcomes:

- * Classify Differential Equations - Correctly classify differential equations by degree (first-order, second-order, ...), linear or nonlinear, ordinary or partial, homogeneous or driven. (Created By CAN Dept - Mathematics)
- * Develop Models - Correctly develop a differential equation to model a particular situation. (Created By CAN Dept - Mathematics)
- * Direction Fields - Correctly use a direction field to describe the behavior of the solution to a first-order differential equation given an initial condition. (Created By CAN Dept - Mathematics)
- * Initial value problems - Use standard methods (integrating factors, undetermined coefficients, variation of parameters, Laplace Transforms, numerical methods, power series) to find a solution to an initial-value problem. (Created By CAN Dept - Mathematics)
- * Solve Differential Equations - Correctly determine whether a solution to a differential equation exists and whether or not it is unique. (Created By CAN Dept - Mathematics)
- * Validate Solutions - Correctly determine whether a given function is a solution to a differential equation. (Created By CAN Dept - Mathematics)

CAN MATH 811 - Pre-Algebra

Course Outcomes:

- * fractions - Simplify numeric expressions involving fractions. (Created By CAN Dept - Mathematics)
- * operations - Simplify numeric expressions using mathematical operations using order of operations. (Created By CAN Dept - Mathematics)
- * percentages - Solve problems involving percentages. (Created By CAN Dept - Mathematics)
- * proportions - Set up and solve proportion problems. (Created By CAN Dept - Mathematics)
- * signed numbers - Perform mathematical operations using signed numbers. (Created By CAN Dept - Mathematics)
- * word problem - Translate verbal expressions into math and solve. (Created By CAN Dept - Mathematics)

CAN MATH 818 - Basic Mathematics for Health Science

Course Outcomes:

- * arithmetic - Perform basic mathematical operation on whole numbers, fractions, and decimals. (Created By CAN Dept - Mathematics)
- * percent - Set up and solve a proportions and percent problem. (Created By CAN Dept - Mathematics)
- * stats - Compute basic descriptive statistics: Mean, Standard Deviation, and Coefficient of Variation (Created By CAN Dept - Mathematics)
- * units - Perform unit conversions (Created By CAN Dept - Mathematics)