

<b>Course Code</b>	1208300
<b>Course Category</b>	6-12
<b>Subject Area</b>	Mathematics
<b>Course Type</b>	Core
<b>Course Title</b>	Liberal Arts Mathematics
<b>Course Level</b>	2
<b>Course Length</b>	Full Year
<b>Credit Description</b>	1
<b>Abbreviated Title</b>	Liberal Arts Mathematics

**RELATED BENCHMARKS (35) :**

Scheme	Descriptor
LA.910.1.6.1	The student will use new vocabulary that is introduced and taught directly;
LA.910.4.2.1	The student will write in a variety of informational/expository forms, including a variety of technical documents (e.g., how-to-manuals, procedures, assembly directions);
MA.912.A.1.3	Simplify real number expressions using the laws of exponents.
MA.912.A.1.4	Perform operations on real numbers (including integer exponents, radicals, percents, scientific notation, absolute value, rational numbers, irrational numbers) using multi-step and real-world problems.
MA.912.A.1.8	Use the zero product property of real numbers in a variety of contexts to identify solutions to equations.
MA.912.A.2.1	Create a graph to represent a real-world situation.
MA.912.A.2.2	Interpret a graph representing a real-world situation.
MA.912.A.2.3	Describe the concept of a function, use function notation, determine whether a given relation is a function, and link equations to functions.
MA.912.A.3.3	Solve literal equations for a specified variable.
MA.912.A.3.4	Solve and graph simple and compound inequalities in one variable and be able to justify each step in a solution.
MA.912.A.3.5	Symbolically represent and solve multi-step and real-world applications that involve linear equations and inequalities.
MA.912.A.3.7	Rewrite equations of a line into slope-intercept form and standard form.
MA.912.A.3.8	Graph a line given any of the following information: a table of values, the x- and y-intercepts, two points, the slope and a point, the equation of the line in slope-intercept form, standard form, or point-slope form.

- MA.912.A.3.9 Determine the slope, x-intercept, and y-intercept of a line given its graph, its equation, or two points on the line.
- MA.912.A.3.10 Write an equation of a line given any of the following information: two points on the line, its slope and one point on the line, or its graph. Also, find an equation of a new line parallel to a given line, or perpendicular to a given line, through a given point on the new line.
- MA.912.A.3.11 Write an equation of a line that models a data set and use the equation or the graph to make predictions. Describe the slope of the line in terms of the data, recognizing that the slope is the rate of change.
- MA.912.A.3.13 Use a graph to approximate the solution of a system of linear equations or inequalities in two variables with and without technology.
- MA.912.A.7.2 Solve quadratic equations over the real numbers by factoring, and by using the quadratic formula.
- MA.912.G.1.1 Find the lengths and midpoints of line segments in two-dimensional coordinate systems.
- MA.912.G.1.4 Use coordinate geometry to find slopes, parallel lines, perpendicular lines, and equations of lines.
- MA.912.G.2.3 Use properties of congruent and similar polygons to solve mathematical or real-world problems.
- MA.912.G.2.5 Explain the derivation and apply formulas for perimeter and area of polygons (triangles, quadrilaterals, pentagons, etc.).
- MA.912.G.2.7 Determine how changes in dimensions affect the perimeter and area of common geometric figures.
- MA.912.G.3.1 Describe, classify, and compare relationships among quadrilaterals including the square, rectangle, rhombus, parallelogram, trapezoid, and kite.
- MA.912.G.4.4 Use properties of congruent and similar triangles to solve problems involving lengths and areas.
- MA.912.G.5.3 Use special right triangles ( $30^\circ - 60^\circ - 90^\circ$  and  $45^\circ - 45^\circ - 90^\circ$ ) to solve problems.
- MA.912.G.5.4 Solve real-world problems involving right triangles.
- MA.912.G.7.5 Explain and use formulas for lateral area, surface area, and volume of solids.
- MA.912.G.7.7 Determine how changes in dimensions affect the surface area and volume of common geometric solids.
- MA.912.G.8.2 Use a variety of problem-solving strategies, such as drawing a diagram, making a chart, guess-and-check, solving a simpler problem, writing an equation, and working backwards.

MA.912.G.8.3 Determine whether a solution is reasonable in the context of the original situation.

Read and interpret data presented in various formats. Determine whether data is presented in appropriate format, and identify possible corrections. Formats to include:

- bar graphs
- line graphs
- MA.912.S.3.1 • stem and leaf plots
- circle graphs
- histograms
- box and whiskers plots
- scatter plots
- cumulative frequency graphs

Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:

- bar graphs
- line graphs
- MA.912.S.3.2 • stem and leaf plots
- circle graphs
- histograms
- box and whisker plots
- scatter plots
- cumulative frequency graphs

MA.912.S.3.3 Calculate and interpret measures of the center of a set of data, including mean, median, and weighted mean, and use these measures to make comparisons among sets of data.

MA.912.S.3.5 Calculate and interpret the range and quartiles of a set of data.