

# CCS COURSE MAP

## SUBJECT: ALGEBRA 2

**GRADE LEVEL** 9<sup>th</sup> -10<sup>th</sup> GRADE  
**COURSE LENGTH** YEAR

**REVIEWED** 2018-2019

Student Goals:					
		I	To understand that mathematical concepts are part of the truth and order that God has built into students' lives.		
		II	To develop thinking and reasoning skills, as well as improve problem-solving skills involving linear, quadratic, cubic, and radical functions.		
		III	To foster an interest in and an enjoyment of mathematics by understanding that math skills apply to students' daily lives.		
Student Outcomes:					
		I	The students will be able to provide general knowledge of mathematical concepts including number systems, operations, geometry, and functions.		
		II	The students will be able to expand on their sense of numbers to understand, perform operations, and solve problems with rational numbers.		
UNIT/ WEEKS	STANDA RD	OBJECTIVES	ACTIVITIES/ASSESSMENT	RESOURCES	BIBLICAL INTEGRATION
1. Expressions, Equations, and Inequalities  3 weeks	8.1.1.1 8.1.1.2 8.2.4.2 8.2.4.5	Students will be able to identify and describe patterns.  Students will be able to graph and order real numbers and identify properties of real numbers.  Students will be able to evaluate and simplify algebraic expressions.  Students will be able to solve equations and inequalities using properties of equality and inequality.	Classroom discussions/ lecture/demonstration by teacher and students.  In-class work.  Homework  Quiz/test	Pearson Algebra 2 © 2012  Chapter notes  Scientific Calculator	Students will be able to use mathematics as a tool to explore and manage God's creation and to glorify God, especially for His created order in mathematics.

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		Students will be able to solve equations and inequalities involving absolute value.			
2. Functions, Equations, and Graphs  4-5 weeks	8.2.4.3 9.2.1.1 9.2.1.2 9.2.1.3 9.2.1.4 9.2.1.9 9.2.4.4 9.2.4.6	<p>Students will be able to graph relations and/or functions.</p> <p>Students will be able to identify functions and direct variations.</p> <p>Students will be able to find slope and write equations of lines using slope-intercept, point-slope, and standard forms.</p> <p>Students will be able to write equations of perpendicular and parallel lines and determine if lines are parallel or perpendicular.</p> <p>Students will be able to write linear equations that model real-world data and make predictions from models.</p> <p>Student will be able to translate and reflect functions.</p>	<p>Classroom discussions/ lecture/demonstration by teacher and students.</p> <p>In-class work.</p> <p>Homework</p> <p>Quiz/test</p>	<p>Pearson Algebra 2 © 2012</p> <p>Chapter notes</p> <p>Scientific Calculator</p>	Students will be able to use mathematics as a tool to explore and manage God's creation and to glorify God, especially for His created order in mathematics.

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		<p>Students will be able to graph absolute value functions and their translations</p> <p>Students will be able to graph two-variable inequalities.</p>			
<p>3. Linear Systems</p> <p>3-4 weeks</p>	<p>9.2.1.2</p> <p>9.2.2.1</p> <p>9.2..4.4</p> <p>9.2.4.5</p>	<p>Students will be able to solve a linear system of equations using a graph, a table, or algebraically.</p> <p>Students will be able to solve systems of linear inequalities.</p> <p>Students will be able to solve problems using linear programming.</p> <p>Students will be able to solve systems of equations in three variables.</p> <p>Students will be able to represent a system of linear equations with a matrix.</p>	<p>Classroom discussions/ lecture/demonstration by teacher and students.</p> <p>In-class work.</p> <p>Homework</p> <p>Quiz/test</p>	<p>Pearson Algebra 2 © 2012</p> <p>Chapter notes</p> <p>Scientific Calculator</p>	<p>Students will be able to use mathematics as a tool to explore and manage God's creation and to glorify God, especially for His created order in mathematics.</p>

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<p>4. Quadratic Functions and Equations</p> <p>4-5 weeks</p>	<p>9.2.1.2 9.2.1.5 9.2.1.6 9.2.2.1 9.2.2.3 9.2.4.1 9.2.4.3 9.2.4.4</p>	<p>Students will be able to identify and graph quadratic functions, and identify the vertex, axis of symmetry, maximum or minimum value, and domain and range of quadratic functions.</p> <p>Students will be able to model data with quadratic functions.</p> <p>Students will be able to factor quadratic expressions.</p> <p>Students will be able to solve quadratic equations by factoring, completing the square, using square roots, and using the quadratic formula.</p> <p>Students will be able to identify, graph, and perform operations with complex numbers.</p> <p>Students will be able to find complex number solutions of quadratic equations.</p> <p>Students will be able to solve and graph systems of linear and quadratic equations and solve and graph systems of quadratic inequalities.</p>	<p>Classroom discussions/ lecture/demonstration by teacher and students.</p> <p>In-class work.</p> <p>Homework</p> <p>Quiz/test</p>	<p>Pearson Algebra 2 © 2012</p> <p>Chapter notes</p> <p>Scientific Calculator</p>	<p>Students will be able to use mathematics as a tool to explore and manage God's creation and to glorify God, especially for His created order in mathematics.</p>
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<p>5. Polynomials and Polynomial Functions</p> <p>4-5 weeks</p>	<p>9.2.1.6 9.2.1.9 9.2.3.2 9.2.3.3</p>	<p>Students will be able to classify and graph polynomials and describe end behavior.</p> <p>Students will be able to analyze the factored form of a polynomial.</p> <p>Students will be able to write a polynomial function from its zeros.</p> <p>Students will be able to solve polynomial equations by factoring and by graphing.</p> <p>Students will be able to divide polynomials using long division and synthetic division.</p> <p>Students will be able to solve equations using the Rational Root Theorem and will be able to use the Conjugate Root Theorem.</p> <p>Students will be able to use the Fundamental Theorem of Algebra to solve polynomial equations with complex solutions.</p> <p>Students will be able to expand a binomial using Pascal's Triangle and be able to use the Binomial</p>	<p>Classroom discussions/ lecture/demonstration by teacher and students.</p> <p>In-class work.</p> <p>Homework</p> <p>Quiz/test</p>	<p>Pearson Algebra 2 © 2012</p> <p>Chapter notes</p> <p>Scientific Calculator</p>	<p>Students will be able to use mathematics as a tool to explore and manage God's creation and to glorify God, especially for His created order in mathematics.</p>
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		<p>Theorem.</p> <p>Students will be able to model data using linear, quadratic and cubic models with technology.</p> <p>Students will be able to apply transformations to graphs of polynomials.</p>			
<p>6. Radical Functions and Rational Exponents</p> <p>5-6 weeks</p>	<p>9.2.1.9</p> <p>9.2.2.6</p> <p>9.2.3.1</p> <p>9.2.3.2</p> <p>9.2.3.4</p> <p>9.2.3.6</p> <p>9.2.4.7</p>	<p>Students will be able to find <math>n</math>th roots.</p> <p>Students will be able to add, subtract, multiply and divide radical expressions.</p> <p>Students will be able to simplify expressions with rational exponents.</p> <p>Students will be able to solve square root and other radical equations.</p> <p>Students will be able to add, subtract, multiply and divide functions and find the composite of functions.</p>	<p>Classroom discussions/ lecture/demonstration by teacher and students.</p> <p>In-class work.</p> <p>Homework</p> <p>Quiz/test</p>	<p>Pearson Algebra 2 © 2012</p> <p>Chapter notes</p> <p>Scientific Calculator</p>	<p>Students will be able to use mathematics as a tool to explore and manage God's creation and to glorify God, especially for His created order in mathematics.</p>

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		<p>Students will be able to find the inverse of a relation or function.</p> <p>Students will be able to graph square root and other rational functions and their transformations.</p>			
<p>7. Exponential and Logarithmic Functions</p>	<p>9.2.1.7 9.2.1.8 9.2.1.9 9.2.2.2 9.2.2.3 9.2.4.2</p>	<p>Students will be able to model exponential growth and decay.</p> <p>Students will be able to graph exponential functions and their translations.</p> <p>Students will be able to write, evaluate, and graph logarithmic functions.</p> <p>Students will be able to solve exponential and logarithmic equations.</p>	<p>Classroom discussions/ lecture/demonstration by teacher and students.</p> <p>In-class work.</p> <p>Homework</p> <p>Quiz/test</p>	<p>Pearson Algebra 2 © 2012</p> <p>Chapter notes</p> <p>Scientific Calculator</p>	<p>Students will be able to use mathematics as a tool to explore and manage God's creation and to glorify God, especially for His created order in mathematics.</p>

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