

West Linn–Wilsonville School District

Mathematics – Course Statement

<u>Course Title: Trigonometry</u>	
Length of Course:	Year
Number of Credits:	1
Grade Level:	10, 11, 12
Prerequisites:	Advanced Algebra
Date of Description/Revision: 2013	
Course Overview	
<p>This course includes the study of relations, functions, and their graphs; the solving of equations both algebraically and graphically; the study of specific families of functions and their properties such as polynomial, rational, logarithmic, exponential, and trigonometric; and investigation of conic sections, complex numbers, vectors, polar and parametric equations, sequences and series, and matrices. A heavy emphasis on graphing utilities leads to the development of conceptual understanding.</p>	
Essential Questions	Concepts providing focus for student learning
<ul style="list-style-type: none"> • What are the similarities and differences between different families of functions and relations, their inverses and their graphs? • How can we collect and analyze data to make logical arguments? • What real-world problems can be solved with the tools of functions, statistics, and trigonometry? 	
Common Core Standards For Mathematical Practice	
<p>Students will develop the following practices throughout the course:</p> <ul style="list-style-type: none"> • Make sense of problems and persevere in solving them. • Reason abstractly and quantitatively. • Construct viable arguments and critique the reasoning of others. • Model with mathematics. • Use appropriate tools strategically. • Attend to precision • Look for make use of structure. • Look for and express regularity in repeated reasoning. 	
Proficiency Statements	
<p>Upon completion of course, students will be able to:</p> <ul style="list-style-type: none"> • Explore and research mathematical applications in each unit of study. • Develop the language and symbolism to communicate mathematically. • Make and test conjectures, formulate counter-examples, follow logical arguments, and discuss the validity of arguments being presented. • Recognize the connections among various mathematical topics and their applications. • Calculate measure of center and spread for data. 	

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- Use statistics to describe data sets and make conclusions about the populations from which the data came.
- Read and construct bar, box, and circle graphs.
- Find and interpret linear and quadratic models.
- Find the composites and inverses of functions algebraically and graphically.
- Apply the graph translation and graph scale change theorems to functions and their graphs.
- Solve exponential and logarithmic equations.
- Solve problems with trigonometric ratios, law of sines and cosines, and theorems about sines, cosines, and tangents.
- Solve equations involving circular functions and graph transformations of circular functions.
- Use probability, the counting theorem, permutations, and combinations to solve problems.
- Use sequences and series to solve problems.
- Apply the Remainder Theorem, Factor Theorem, Fundamental Theorem of Algebra, and conjugate Zero's Theorem.
- Factor polynomials; construct and interpret polynomials that model real world situations.

General Course Topics/Units & Timeframes

Semester 1

- A. Exploring data
- B. Functions and models
- C. Transformations of graphs and data
- D. Circular functions
- E. Trig functions
- F. Root, power and log functions

Semester 2

- G. Probability and simulation
- H. Statistics
- I. Sequences, series and combinations
- J. Polynomial functions
- K. Binomial and normal distributions
- L. Matrices and trig
- M. Quadratic relations
- N. More trigonometry

Resources

- Text: *Contemporary Trigonometry, A Graphing Approach, 1st Edition*, Hungerford, Brooks/Cole, 2006

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