

PRECALCULUS OVERVIEW

UNIT 1 - EXPLORING FUNCTIONS (4 WEEKS)	<ul style="list-style-type: none"> • In what ways can we express mathematical ideas? • How can a function help with analysis? • Can anything be modeled mathematically? How and to what extent? • What factors can be used to determine whether an analytic or graphical strategy is most advantageous in solving a problem? • How can analytic and graphical methods be used to support each other in the solution to a problem?
Unit 2 - Polynomial, Power, & Rational Functions (10 weeks)	<ul style="list-style-type: none"> • To what extent can we predict the future? • Does change ever stop? • How can infinity occur in reality? • To what extent can technology be used to analyze a graph? • How many solutions does a polynomial have?
Unit 3 - Exponential, Logarithmic, & Logistic Functions (4 weeks)	<ul style="list-style-type: none"> • How can exponential growth continue on forever? • When is growth exponential versus logistic? • To what extent can I use mathematics to prepare for my own financial success or demise? • How are exponential and logarithmic functions related? • Why is the natural base e natural?
Unit 4 - Trigonometric Functions (4 weeks)	<ul style="list-style-type: none"> • How does the periodic nature of the trigonometric functions affect their analytic values and graphical representations? • When should we use degrees and when should we use radians for measuring angles? • How are the trigonometric functions related on another? • To what extent can all periodic events in our world be modeled with trigonometric functions?
Unit 5 - Analytic Trigonometry (4 weeks)	<ul style="list-style-type: none"> • What do the transformations of the trig functions look like symbolically? • TO what extent can right triangle trigonometry be generalized to all triangles? • How are the trigonometric identities helpful?
Unit 6 - Analytic Geometry/Conics (4 weeks)	<ul style="list-style-type: none"> • How are the different conic shapes related? • In what ways does society take advantage of the reflective properties of the conic shapes? • How does eccentricity connect the conics?
Unit 7 - Sequences & Series (4 weeks)	<ul style="list-style-type: none"> • What is the relationship between arithmetic and geometric sequences? • To what extent is an arithmetic sequence a linear function? • To what extent is a geometric sequence an exponential functions? • How can an infinite number of numbers add up to a finite quantity?