# AP Pre-Calculus Curriculum Map
## 2024-2025

| TOPIC & TEXTBOOK CHAPTERS | Duration | Month(s) |
|---|---|---|
| **Unit 1: Graphs & Function Review**<br>Chapters 1 & 2: Rectangular Coordinates, Intercepts, Symmetry, Solving Equations, Lines, Circles, Functions, Graphs, Function Library, Transformations | 3 wks | Aug/Sept |
| **Unit 2: Linear & Quadratic Functions**<br>Chapter 3: Linear Functions, Linear Models, Quadratic Functions, Quadratic Models, Inequalities from Quadratic Functions | 2 wks | Sep |
| **Unit 3: Polynomial and Rational Functions**<br>Chapter 4: Polynomial Functions and Models, Rational Functions & Graphs, Polynomial and Rational Inequalities, Real Zeros, Complex Zeros, Fundamental Theorem of Algebra | 3 wks | Sep/Oct |
| **Unit 4: Exponential and Logarithmic Functions**<br>Chapter 5: Composite Functions, One-to-One Functions, Inverse Functions, Exponential Functions, Logarithmic Functions, Properties of Logarithms, Logarithmic & Exponential Equations, Financial Models, Exponential Growth/Decay Models, Logistic Growth/Decay Models | 5 wks | Oct/Nov |
| **Unit 5: Systems of Equations and Inequalities**<br>Chapters 11 & 12: Systems of Linear Equations, Substitution & Elimination, Matrices, Determinants, Matrix Algebra, Partial Fraction Decomposition, Systems of Inequalities, Linear Programming, Geometric & Arithmetic Sequences & Series, Mathematical Induction, Binomial Theorem | 4 wks | Nov/Dec |
| **Unit 6: Trigonometric Functions**<br>Chapter 6: Angles, Trigonometric Functions, Unit Circle, Trigonometric Function Properties, Trigonometric Function (Sine, Cosine, Tangent, Cosecant, Secant and Cotangent) Graphs, Phase Shift, Sinusoidal Curve Fitting | 5 wks | Jan |
| **Unit 7: Analytic Trigonometry**<br>Chapter 7: Inverse Trigonometric Functions, Trigonometric Identities, Sum/Difference Formulas, Double-Angle & Half-Angle Formulas, Product-to-Sum & Sum-to-Product Formulas, Trigonometric Equations | 4 wks | Feb |
| **Unit 8: Applications of Trigonometric Functions**<br>Chapter 8: Applications of Right Triangle Trigonometry, Law of Sines, Law of Cosines, Area of a Triangle, Simple Harmonic Motion, Damped Motion, Combing Waves | 2 wks | Mar |
| **Unit 9: Polar Coordinates & Vectors**<br>Chapter 9: Polar Coordinates, Polar Equations & Graphs, The Complex Plane, De Moivre's Theorem, Vectors, The Dot Product, Vectors in Space, The Cross Product | 3 wks | Mar/Apr |
| **Unit 10: Analytic Geometry**<br>Chapter 10: Conics, Parabolas, Ellipses, Hyperbolas, Rotation of Axes, General Form of a Conic, Polar Equations of Conics, Plane Curves & Parametric Eqns, Systems of Nonlinear Equations | 5 wks | Apr/May |