AP Calculus Scope & Sequence

2015-2016

ORANGE PUBLIC SCHOOLS

OFFICE OF CURRICULUM AND INSTRUCTION

OFFICE OF MATHEMATICS

AP Calculus– Scope and Sequence

Limits: Weeks 1-3

- Finding Limits Graphicially and Numerically
- Evaluating Limits Analytically
- Continuity and One-Sided Limits
- Infinite Limits
- Limits at Infinite

Differentiation: Weeks 4-8

- The Derivative and Tangent Line Problem
- Basic Differentiation Rules and Rates Of Change
- Product And Quotient Rules and Higher-Order Derivatives
- The Chain Rule
- Implicit Differentiation
- Related Rates

Applications of Differentiation: Weeks 9-13

- Extrema on an Interval
- Rolle's Theorem and The Mean Value Theorem
- Increasing and Decreasing Functions and the First Derivative Test
- Concavity and the Second Derivative Test
- A Summary of Curve Sketching
- Optimization
- Differentials

Integration: Weeks 14-17

- Antiderivatives and Indefinite Integration
- Area
- Riemann Sums and Definite Integrals
- The Fundamental Theorem of Calculus
- Integration By Substitution
- Numerical Integration

Transcendental Functions: Weeks 18-21

- The Natural Logarithmic Function: Differentiation
- The Natural Logarithmic Function: Integration
- Inverse Functions
- Exponential Functions: Differentiation And Integration
- Bases Other Than e
- Inverse Trigonometric Functions: Differentiation And Integration

Differential Equations: Weeks 22-24

- Slope Fields And Euler's Method
- Differential Equations: Growth And Decay
- Separation Of Variables And The Logistic Equation

Applications of Integration: Weeks 25-27

- Area Of A Region Between Two Curves
- Integral As Net Change Over A Specific Period Of Time
- Volume Of Solids

AP Exam Review: Weeks 28-31

- Review all prior topics
- Practice previous AP free response and multiple choice questions

Additional Topics in Calculus: Weeks 32-38

- Students will choose from a bank of additional topics
- Final exam review