Orange Public Schools

Office of Curriculum & Instruction

2019-2020 Mathematics Curriculum Guide

AP Calculus

Scopes and Sequences

September 9, 2019 – June 2020

Limits: Week 1-3

- Finding Limits Graphically 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