Calculus 1 and 2

The following learning targets represent the major concepts studied and assessed in this course.

Unit P ***Precalculus Review***	P.1 Graphs and Models P.2 Linear Models and Rates of Change P.3 Functions and Their Graphs P.4 Fitting Models to Data
Unit 1 ***Limits and Continuity***	Introduction to calculus and limits Finding limits graphically and algebraically Limits and continuity Infinite limits Special limits - squeeze theorem and intermediate value theorem
Unit 2 ***Differentiation: Definition and Properties***	Definition of the derivative Power rule of the derivative Product and quotient rule of the derivative Chain rule of the derivative Implicit differentiation
Unit 3 ***Transcendental and Inverse Derivatives***	Transcendental derivatives Derivatives of inverse functions Derivatives of inverse trig functions L'Hopital's rule
Unit 4 ***Applications of the Derivative - Curve Sketching***	Position, velocity, and acceleration applications of the derivative Extreme values and crucial numbers First derivative test for increasing/decreasing/minimum/maximum Second derivative test for concavity and points of inflection
Unit 5 ***Analytical Applications of Derivatives***	Mean value theorem L'Hopital's rule Related rates Optimization
Unit 6 ***Integration and Accumulation of Change***	Indefinite integrals U-Substitution of integration Area under the curve and definite integrals Area under the curve with summation and definite integral Accumulation function Summation formulas and properties Riemann sums and area with summation Fundamental theorem of calculus
Unit 7 ***Transcendental Integration***	Natural log integration Exponential functions integration Inverse trigonometric integrals

Calculus 1 and 2

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Unit 8 ***Applications of Integration***	Area between curves Disk and washer method for a solid of revolution Shell method for solids of revolution Arc length and surface area Work Moments and centers of mass Fluid force and pressure
Unit 9 ***Complex Integration***	Basic integration rules Integration by parts Trigonometric integration Trigonometric substitution Partial fractions Improper integrals
Unit 10 ***Sequences and Series***	Sequences and limits Series and convergence P-series and integral test Comparison test Alternating series test Ratio and root test
Unit 11 ***Parametric and Polar Equations***	Conics and calculus Parametric equations Parametric equations and calculus Polar coordinates and graphs Polar graphs