Calculus Updated 2020

Course Description

Calculus is an advanced *CCR course that is intended for students who have a thorough knowledge of college preparatory mathematics, including algebra, geometry, and trigonometry. In this course limits, derivatives, integrals and their applications will be studied. Students may earn college credit for this course. Be sure to check additional requirements to see if you qualify for dual enrollment.

Big Ideas

1. The concept of limits and continuity form the basis of Calculus.
2. The Derivative can be used to model the behavior of a function.
3. The derivative can be applied to real life situations.
4. The anti – derivative can be used to gain a better understanding of a functions behavior.
5. The anti – derivative can be applied to real life situations.

Essential Learning Objectives

ELO #	Essential Learner Outcome Description	Standards
1	The Concept of a limit can be used to understand the behavior of functions	EU 1.1
2	Continuity is a key property of functions that is defined using limits	EU 1.2
3	The derivative of a function is defined as the limit of a difference quotient and can be determined using a variety of strategies.	EU 2.1
4	A function's derivative, which is itself a function, can be used to understand the behavior of the function	EU 2.2
5	The derivative has multiple interpretations and applications including those that involve instantaneous rates of change	EU 2.3
6	The Mean Value Theorem connects the behavior of a differentiable function over an interval to the behavior of the derivative of that function at a particular point in time.	EU 2.4
7	Antidifferentiation is the inverse process of differentiation	EU 3.1
8	The fundamental Theorem of Calculus, which has two distinct formulations, connects differentiation and integration.	EU 3.3
9	The definite integral of a function over an interval is a mathematical tool with many interpretations and applications involving accumulation.	EU 3.4
10	Solving seperable differentiable equations involves determining a function or relation given its rate of change.	EU 3.5