Course Description, Pacing Guide, Instructional Materials

Content Area: **Mathematics**
Course(s):
Time Period: **Marking Period 1**
Length: **Blocks**
Status: **Published**

Course Description

Calculus is not only the language for expressing physical laws in precise mathematical terms, but it is also a tool for studying these laws. This course involves a comprehensive study of differential and integral calculus.
The concepts of limits and continuity are analyzed as the basis for the study of calculus. A balance is maintained between theory, applications and manipulative techniques. This course prepares students for future study in college level mathematics.

Pacing Guide

Pacing Guide

Midterm and Final Exam Review TBD

Block	Marking Period 1	Block	Marking Period 2
1,2	Summer Assignemnt/Trig Review	1	Log/Exponential/Trig Derivatives
3	Definition of a Limit, Limit from a graph	2	Product/Quotient Rule basic
4	Right Hand, Left Hand Limits from a graph	3	Product/Quotent Rule with all types of functions. Sum and Difference, and higher order
5	Limits from a Function	4	Product/Quotient Rule at a point, equations of tangent and normal curves, and horiziontal tangents
6	Quiz Limits Using Direct Substiution, Factoring, Rationalizing, Two Variable, and PieceWise	5	Quiz on Derivaatives Chain Rule Basic
7	Limits Using Direct Substiution, Factoring, Rationalizing, Two Variable, and PieceWise	6	Chain Rule with all types of derivatives and more compllicated "insides"
8	Quiz Continuting from a graph, Domain	7	Chain Rule and Review
9	IVT	8	Quiz on Chain Rule
10	Unit Review	9	Unit Review
11	Unit Test	10	Unit Test

12	Average Rate of Change of an interval, Slope of a Secant Line, writing equations of secant lines in point slope form.	11	Define Position, Velocity and Acceleration from a Graph, Function, or table
13	Average Rate of Change Day 2. Word problems, tables, more complication functions. Emphasize units of measure.	12	Position, Velocity and Acceleration from a Graph, Function, or table
	L'Hopitals		
	Quiz		
14	Definition of Derivative. Derivative Notation, Derivative at a given point using Limit Notation	13	Quiz Extrema
15	Definition of Derivative Day 2. Derivative Notation, Derivative at a given point using Limit Notation	14	Extrema and Critial Points
16	Definition of Derivative Day 3 using Limit Notation, including writing equations of tangent lines and normal lines. Also, Is a graph continues and differentiable	15	Critical Points using all rules
17	Quiz Power Rule	16	Quiz First Derivative Test
18	Power Rule Day 2 with sum and difference, higher order derivatives.	17	First Derivative Test and Concavity
19	Power Rule practice with tangent, and normal lines. Calculating a derivative at a point using a calculaotr	18	First Derivative Test and Concavity
20	Unit Review	19	Quiz Unit Review
21	Test	20	Unit Review
22	Remediation Day	21	Unit Test
		22	Midterm Review
Block	Marking Period 3	Block	Marking Period 4
1	Define Implict and Explicit Functions and determine the derivative implicitly	1	Particle Motion with Integration
2	Implicit Differentiation	2	Trig/Log/Exponential Integration Basic
3	Implicit Differentiation at a point and equations of tangent lines.	3	Indefinite Integration with U-Sub
4	Quiz Related Rates Intro	4	Indefinite Integration with U-Sub
5	Related Rates	5	Quiz Indefinite Integration with

			Trig/Logs/Exponentials
6	Related Rates and Optimization	6	Review All U-Sub
7	Optimization	7	U-Sub with Deifinite Integration
8	Review	8	Quiz
9	Quiz	9	Review
10	Unit Review	10	Unit Test
11	Unit Test	11	Average Value
12	Riemann Sum and Area under the curve using rectangles. Calculate RRAM, LRAM, MRAM, using a graphing, table, function.	12	Average Value and Area between two curves
13	Area under the curve using RRAM, LRAM, MRAM, and Trapazoid Rule using a graphing, table, function.	13	Reivew
14	Review	14	Quiz
15	Quiz Antiderivative Basic, Consant Rule, Power Rule, Sum and Difference	15	Determine the volume of solids of revolution about a zero and non zero axis of rotations using the method of disks/rings
16	Antiderivative: Consant Rule, Power Rule, Sum and Difference, and Trig Integrals	16	Determine the volume of solids of revolution about a zero and non zero axis of rotations using the method of disks/rings
17	Indefinite Integral Practice and Review	17	Determine the volume of solids of revolution about a zero and non zero axis of rotations using the method of cylinders/shells
18	Quiz Particular Solutions	18	Determine the volume of solids of revolution about a zero and non zero axis of rotations using the method of cylinders/shells
19	Particular Solutions	19	Solve problems involving work
20	Define a Definite Integral and use the FTC	20	Review
21	Define a Definite Integral and use the FTC	21	Quiz
22	Review Day 23- Unit Test	22	Final Exam Review

Core Instructional & Supplemental Materials including various levels of Texts