# Course Description, Pacing Guide, Instructional Materials <br> Content Area: Mathematics <br> Course(s): <br> Time Period: Length: <br> Status: <br> Marking Period 1 <br> Blocks <br> 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
1,2 Summer Assignemnt/Trig Review
Definition of a Limit, Limit from a graph

Right Hand, Left Hand Limits from a graph

Limits from a Function

Quiz
Limits Using Direct Substiution, Factoring, Rationalizing, Two
Variable, and PieceWise
Limits Using Direct Substiution, Factoring, Rationalizing, Two
Variable, and PieceWise
Quiz
Continuting from a graph, Domain
IVT
Unit Review
Unit Test

Block Marking Period 2
$1 \mathrm{Log} /$ Exponential/Trig Derivatives
2 Product/Quotient Rule basic
Product/Quotent Rule with all types of functions. Sum and Difference, and higher order
Product/Quotient Rule at a point, equations of tangent and normal curves, and horiziontal tangents

Quiz on Derivaatives
Chain Rule Basic

Chain Rule with all types of derivatives and more compllicated "insides"

Chain Rule and Review

Quiz on Chain Rule
Unit Review
Unit Test

Implicit Differentiation
Implicit Differentiation at a point and equations of tangent lines.
Quiz

Related Rates Intro
Average Rate of Change of an interval, Slope of a Secant Line, writing equations of secant lines in point slope form.
Average Rate of Change Day 2. Word problems, tables, more complication functions. Emphasize units of measure.

## L'Hopitals

Quiz
Definition of Derivative. Derivative
Notation, Derivative at a given point using Limit Notation
Definition of Derivative Day 2.
Derivative Notation, Derivative at a 14 given point using Limit Notation Definition of Derivative Day 3 using Limit Notation, including writing equations of tangent lines and normal lines. Also, Is a graph continues and differentiable
Quiz

Power Rule
Power Rule Day 2 with sum and difference, higher order derivatives.
Power Rule practice with tangent, and normal lines. Calculating a derivative 18 at a point using a calculaotr

Unit Review 19
Test 20
Remediation Day

Indefinite Integration with U-Sub
Indefinite Integration with U-Sub

## Quiz

Define Position, Velocity and Acceleration from a Graph, Function, or table

Position, Velocity and Acceleration
from a Graph, Function, or table

Quiz
Extrema

Extrema and Critial Points

Critical Points using all rules

Quiz
First Derivative Test
First Derivative Test and Concavity

First Derivative Test and Concavity
Quiz
Unit Review
Unit Review
Unit Test
Midterm Review
Marking Period 4

Trig/Log/Exponential Integration Basic

Indefinite Integration with
Related Rates and Optimization 6

Antiderivative Basic, Consant Rule, Power Rule, Sum and Difference

Antiderivative: Consant Rule, Power
Rule, Sum and Difference, and Trig Integrals

Indefinite Integral Practice and Review

Quiz
Particular Solutions
Particular Solutions19

Define a Definite Integral and use the FTC
Define a Definite Integral and use the FTC
Review
Day 23- Unit Test

Review All U-Sub
U-Sub with Deifinite Integration Quiz

Review

Unit Test
Average Value

Average Value and Area between two curves

Reivew

Quiz
Determine the volume of solids of revolution about a zero and non zero axis of rotations using the method of disks/rings

Determine the volume of solids of revolution about a zero and non zero axis of rotations using the method of disks/rings
Determine the volume of solids of revolution about a zero and non zero axis of rotations using the method of cylinders/shells
Determine the volume of solids of revolution about a zero and non zero axis of rotations using the method of cylinders/shells
Solve problems involving work
Review

Quiz

Final Exam Review

