

## MODESTO CITY SCHOOLS COURSE OUTLINE

<b>Course Title</b>	PreCalculus Honors OLL S1	PreCalculus Honors OLL S2
<b>Course Number</b>	Oll30251	Oll30252
<b>Recommended Grade</b>	<input type="checkbox"/> 7 <input type="checkbox"/> 8 <input checked="" type="checkbox"/> 9 <input checked="" type="checkbox"/> 10 <input checked="" type="checkbox"/> 11 <input checked="" type="checkbox"/> 12	
<b>Duration</b>	<input type="checkbox"/> Quarter <input checked="" type="checkbox"/> Semester	
<b>Credit</b>	<input type="checkbox"/> 2.5 <input checked="" type="checkbox"/> 5 <input type="checkbox"/> 10	
<b>Repeatable for Credit</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
<b>Required for Graduation</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
<b>Meets Graduation Requirement</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
<b>CALPADS Course Number</b>	9257	
<b>CALPADS Course Name</b>	Pre-Calculus	
<b>Meets UC/CSU Requirements</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No If yes, which area? <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E <input type="checkbox"/> F <input type="checkbox"/> G	
<b>CTE Course</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
<b>CTE Course Level</b>	<input type="checkbox"/> Introduction <input type="checkbox"/> Concentrator <input type="checkbox"/> Capstone N/A	
<b>Part of a Course Pathway</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, which pathway?	
<b>Credential Requirements</b>		
<b>Replaces</b>	N/A	
<b>Recommended Prerequisites</b>	N/A	
<b>Aligned to Standards Date</b>		
<b>Content Delivery Method</b>	<input type="checkbox"/> Instructor Led <input checked="" type="checkbox"/> Online Provider Modesto Virtual Academy	
<b>Other Information</b>		
<b>Board Approval Date</b>		
<b>Implementation Date</b>	Fall 2020	

**Course Description:**

**Required Text(s):** (Title, Publisher, Year):

**Supplementary Materials(s):**

**Course Name:** Pre-Calculus Honors v12 and v12.2

**Course Credit:** 1.0

**Estimated Completion Time:** 2 Semesters / 32-36 Weeks

**Course Description:** Students, as mathematic analysts, will investigate how advanced mathematics concepts can solve problems encountered in operating national parks. The purpose of this course is to study functions and develop skills necessary for the study of calculus. The Pre-calculus course includes analytical geometry and trigonometry. Pre-calculus is an Honors level course.

**Discussion-Based Assessments:** 1.06b, 2.08b, 3.06b, 4.09b, 5.06b, 6.06b, 7.05b, 8.07b, 9.05b

**Collaboration Assignments:** 1.08, 2.10, 3.08, 4.11, 5.08, 6.08, 7.07, 8.09, 9.07

**Honors Lessons:** The entire course is designated for honors credit

**Course Profile:**

Honors Assessments	94
Automated Quizzes	78
Project-Based Assessments	1
Labs	1
Writing Assignments	N/A
Graded Assessments	94
Non-Graded Assessments	16

**Types of Assessments:**

Multiple Choice	X	Essay	X
Worksheets		Collaborative	X
Web 2.0		Short Response	X
Project – Based	X	Labs	X
Self - Check	X	Discussion-Based Assessments	X

## Scope and Sequence:

### Module 01: Functions and Their Graphs

- Functions and Their Properties
- Graphs of Functions
- Building Functions from Functions
- Inverse Functions
- Graphing Transformations

### Module 02: Polynomials and Rational Functions

- Quadratic Functions
- Polynomial Functions of Higher Degree
- Real Zeros of Polynomial Functions
- Complex Zeros
- The Fundamental Theorem of Algebra
- Writing about Polynomials
- Rational Functions and Asymptotes
- Graphs of Rational Functions

### Module 03: Exponential and Logarithmic Functions

- Exponential and Logistic Functions
- Exponential and Logistic Modeling
- Logarithmic Functions and Their Graphs
- Properties of Logarithms
- Equation Solving

### Module 04: Trigonometric Functions

- Angles and Their Measures
- Trigonometric Functions of Acute Angles
- Trigonometric Functions of Any Angle
- The Unit Circle
- Graphs of Sine and Cosine Functions
- Graphs of Other Trigonometric Functions
- Inverse Trigonometric Functions
- Solving Problems with Trigonometry

### Module 05: Analytic Trigonometry

- Using Fundamental Identities
- Solving Trigonometric Equations
- Proving Trigonometric Equations
- Sum and Difference Formulas
- Multiple-Angle Formulas

Module 06: Additional Topics in Trigonometry

- Law of Sines
- Law of Cosines
- Applying the Law of Sines and Cosines
- Vectors in the Plane
- Dot Products of Vectors
- DeMoivre's Theorem and nth Roots

Module 07: Sequences, Series, and Proof by Induction

- Arithmetic Sequences
- Geometric Sequences
- Series and Summation
- Mathematical Induction

Module 08: Topics in Analytical Geometry

- Introduction to Conics: Parabolas
- Ellipses
- Hyperbolas
- Parametric Equations
- Applications of Parametric Equations
- Polar Coordinates
- Graphs of Polar Equations

Module 09: Line and Introduction to Calculus

- Introduction to Limits and the Derivative
- Techniques for Evaluating Limits
- Evaluating One-Sided Limits
- Techniques for Evaluating Limits
- Continuity at a Point