



ICEF Public Schools

PRE-CALCULUS A



Course Outline and Syllabus

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Office Hrs: Mon. – Wed. 4:00 – 6:00 pm

Course Description

The objective of this course is to teach students techniques from trigonometry, mathematical analysis, linear algebra, probability and statistics to prepare them for the study of calculus and other advanced courses in mathematics and science. There will also be a rigorous review of Geometry and Algebra II. To be successful in Pre-Calculus, students are expected to have passed Algebra I, Algebra II and Geometry with a grade of C or better. It is recommended that a student has passed the CAHSEE Math. The curriculum will be primarily based on the State of California framework, however, there will be many instances whereby content will exceed standards. The goal of the course is to provide instruction that will develop students to a level of mastery as measured by various assessments (ex. AP, CAHSEE, CST and SAT).

Text: *Pre-Calculus with Limits, a Graphing Approach*, Larson

Outline of California Standards (*adopted by the California State Board of Education*)

SEMESTER I / PRE-CALCULUS A

Chapter 1 Functions and Their Graphs

- 1.1 Lines in the Plane [A1 7.0, A1 8.0, A1 9.0]
- 1.2 Functions [A1 1.2, A1 1.4, A1 1.6, A1 16.0, A1 17.0, A1 18.0]
- 1.3 Graphs of Functions [A1 1.0, A1 2.0, A1 16.0, 18.0]
- 1.4 Shifting, Reflecting and Stretching Graphs [A1 1.2, A1 1.3]
- 1.5 Combinations of Functions [A1 1.2, A1 1.5, A2 24.0]
- 1.6 Inverse Functions [A1 1.1, A1 1.2, A1 10, A1 12, A1 13, A2 1.0, A1 2.0, A1 3.0]
- 1.7 Exploring Data: Linear Models and Scatter Plots [[A1 1.1, A1 1.2]

Chapter 2 Polynomial and Rational Functions

- 2.1 Quadratic Functions [A2 9.0, A2 10.0]
- 2.2 Polynomial Functions of higher Degree [A2 9.0]
- 2.3 Real Zeros of Polynomial Functions [A2 5.0, A2 10.0]
- 2.4 Complex Numbers [A2 5.0, A2 6.0, A3 7.0, A2 8.0]

- 2.5 The Fundamental Theorem of Algebra [MA 4.0]
- 2.6 Rational Functions and Asymptotes [MA 4.0]
- 2.7 Graphs of Rational Functions [A1 1.0, A1 6.0]
- 2.8 Exploring Data: Quadratic Models

Chapter 3 Exponential and Logarithmic Functions

- 3.1 Exponential Functions and Their Graphs [A2 11.0, A2 12.0]
- 3.2 Logarithmic Functions and Their Graphs [A2 11.0, A2 12.0, A2 13.0, A2 14.0, A2 15.0]
- 3.3 Properties of Logarithms [A2 11.0 – A2 15.0]
- 3.4 Solving Exponential and Logarithmic Equations [A2 11.0, A2 12.0, A2 13.0, A2 14.0, A2 15.0]
- 3.5 Exponential and Logarithmic Models [A2 11.0, A2 12.0]
- 3.6 Exploring Data: Non-Linear models

Chapter 4 Trigonometric Functions

- 4.1 Radian and Degree Measure [GE 18.0, TR 1.0]
- 4.2 Trigonometric Functions: The Unit Circle [GE 20.0, TR 1.0, TR 2.0]
- 4.3 Right Triangle Trigonometry [GE 19.0, GE 20.0]
- 4.4 Trigonometric Functions of Any Angle [GE 20.0, GE 21.0]
- 4.5 Graphs of Sine and Cosine Functions [TR 1.0, TR 2.0, TR 3.0, TR 4.0]
- 4.6 Graphs of Other Trigonometric Functions [TR 1.0, TR 2.0, TR 3.0, TR 4.0, TR 5.0, TR 6.0]
- 4.7 Inverse Trigonometric Functions [TR 1.0, TR 2.0, TR 3.0, TR 4.0, TR 5.0, TR 6.0, TR 7.0, TR 8.0]
- 4.8 Applications and Models

Legend for Codes of California Standards

A1 – Algebra 1

CA - Calculus

MA – Mathematical Analysis

A2 – Algebra 2

GE – Geometry

PS – Probability and Statistics

TR – Trigonometry

SYLLABUS

CLASS WORK/HOMEWORK

All work should include First and Last Name, Date, Period and Title. It is expected that each student completes his/her assignment in its entirety both neatly and clearly. Answers should be **BOXED** at the end of the problem. Class work is due at the end of class – unless directed otherwise by the instructor.

Homework will be administered on a daily basis – except on test dates. All questions should be attempted for full credit. Homework will be collected the day after it is assigned at the beginning of the period. Students are expected to write questions to the instructor on a separate sheet of paper for the question/answer session at the beginning of each class.

Should a homework assignment not be completed in its entirety by the assigned time, the student will be given one day to make up the assignment. Credit will be reduced by 50%. Homework after the next day will be accepted, however, no points will be given. Note that if a student frequently turns in homework late or misses assignments, his/her parent will be notified. In the event of an excused absence, homework assignment(s) are expected to be turned in the following day – unless instructed otherwise by the teacher.

PROJECTS

Several projects will be administered. Each of the projects involve application(s) of mathematics in biology, business, chemistry, physics, engineering, life sciences, medicine and computer science. Students are required to use graphing calculators, a PC Computer and network technology. To be successful it is imperative that students explore mathematics in great depth. To ensure success, students are encouraged to work collectively in small groups. It is recommended that students meet with the instructor for assistance whenever necessary. Remember, although you work together, projects are completed and turned in independently – unless instructed otherwise.

ASSESSMENTS

Tests are administered to determine a student's progress in the class. In most instances, they will be given at the end of each chapter, however, the instructor reserves the right to give interim quizzes. It is expected that students show all work neatly, clearly and arranged sequentially in pen. Remember partial credit is given so work problems to the best of your ability. Final solutions should be clearly boxed at the end of the problem. In the event of an unexcused absence, a makeup test/quiz will not be administered.

STUDENT RESPONSIBILITY

Students are required to bring their textbook, an organized 3-ring binder, writing materials assignments, homework, and daily. The first page of your binder must contain

this Course Outline and Syllabus. Contained in your binder will be both your class work and your homework. Attendance and conduct shall at all times adhere to the policy of View Park Preparatory High School (VPPHS). Unexcused tardiness is unacceptable and will not be tolerated. Note that if a student is frequently late/absent, his/her parent will be contacted.

SUPPLIES

- Math notebook
- Calculator Manual
- Mechanical pencil (0.5 mm)
- White gum eraser
- Flash drive (2 MB or higher)
- TI-83 Calculator (or higher)
- TI-Connectivity Kit with software
- Pencil leads (0.5 mm)
- Graph paper
- Geometry kit,
- Access to a PC Computer with Microsoft Excel software.

GRADE DISTRIBUTION

Classwork/Homework	40%
Projects	10%
Tests	40%
Mid-Term/Final	10%
<u>Participation (optional)</u>	<u>10%</u>

Total percentage possible 110%

Note: 1st semester grades do not carry over to 2nd semester.

Students will receive weekly progress reports. Grades are based on **cumulative** points earned on assignments, assessments, and projects. Please take the time to review all grades earned via "Power School." Students who pass both semesters of Geometry with the grade of "C" or better fulfill one of the "A-G" college admission requirements. If you have questions, please contact the teacher through the school website: <http://vpphs.icefla.org>.

GRADE SCALE

100 – 90%	A
89 – 80%	B
79 – 70%	C
69 – 60%	D
59 – 0%	FAIL

<http://vpphs.icefla.org>

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ICEF Public Schools
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Student Name (print): _____ Geometry Period _____

I read the course outline and syllabus for this class, including the grading policy, class procedures, and supplies needed for class:

Parent/Guardian Signature and Date

Phone Contact (home or mobile)

Student Signature and Date

Parent e-mail

Parents, please write any comments or questions that may help me teach your child more effectively below:

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Guidelines for Math Homework Assignments

Following these guidelines will allow you to get the most from your assignments. Your work will be more organized and readable. You'll be able to practice the attention to detail and depth that we require on tests. Finally, you'll be interacting with problems more deeply.



- Assignment Section and Date should head every assignment.
- Each problem includes a problem number.
- Each problem includes a statement of the original question (this can be in brief or abbreviated form)
- Write down what you KNOW - in words, equations or pictures.
- State what you NEED - what's the goal?
- In clear logical steps, answer the question completely. If it asks for an explanation, give an explanation!
- Paths to correct answers are ALWAYS expected.
- Variables should ALWAYS be defined (via words or a clear picture).
- Final answers should ALWAYS be in context of the question. Give units, translate equations back into English, etc....
- Check your answers. Are you showing a clear path? Check the path to your solution with the answer key at school or with hotmath.com. Do you show sufficient detail?
- When you are stuck on a problem, you should STILL include -
 - o What's given in the problem. (via words, equation or diagram)
 - o The goal of the problem
 - o An attempt, a SPECIFIC reason why you are stuck. "I don't know where to go from here" is not a specific reason. Point to the confusing phrase or task.

In other words, a blank response is never appropriate.

