



AP Calculus AB Syllabus & Information

2021-2022 School Year

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Before enrolling in AP Calculus AB, students should have successfully completed Algebra I, Geometry, Algebra II and Precalculus. Calculus AB is designed to be the equivalent of a first-semester college calculus course. It covers fundamental topics in calculus such as limits and continuity, differentiation, integration and accumulation of change, and differential equations.

SUPPLIES

Each student will be expected to bring the following to class each day:

- Notebook / paper / binder
- Pencil
- Textbook
- Graphing calculator (Recommended calculator: TI-84+CE or TI-89 Titanium)
 - Recommended students buy one
 - Plano East TI-84 graphing calculators are available on a first come, first served basis.
 - The calculator uses 4 AAA batteries. Students provide their own batteries.
 - Students must submit the Parent Permission Form before calculator pickup.
 - Calculator pickup schedule:
 - August 16 - 20, both lunches in B1-262
 - August 23 - 27, both lunches in B1-262
 - After August 27, Mondays & Thursdays, both lunches in B1-262
 - To access the form, scan the QR code or visit <https://tinyurl.com/PESHCalculatorForm>



ONLINE PLATFORM CODES

Google Classroom	Delta Math	Remind	College Board
0 Hour: eokzvpp 1st Period: 3jjexfi 3rd Period: rzdd6ry 5th Period: yjbomqv	0 Hour / 3rd Period: H79R-P3YM 1st / 5th Period: U4N9-S4K5	Text @3hf7akkk to 81010	DR6JJK

AP EXAM INFORMATION

The Advanced Placement Exam for AB Calculus will be given **Monday, May 9, 2022** at **8:00 a.m.** The breakdown for the AP exam is as follows:

- ❖ Multiple Choice – 50%
 - Part A: 30 questions, 60 minutes – NO CALCULATOR
 - Part B: 15 questions, 45 minutes – WITH CALCULATOR
- ❖ Free Response – 50%
 - Part A – 2 questions, 30 minutes – WITH CALCULATOR
 - Part B – 4 questions, 60 minutes – NO CALCULATOR

TEXTBOOK

The state-adopted textbook for this course is Calculus 10e AP, published by Cengage Learning. It will be of utmost importance for students to have access to a book at all times.

ABSENCES

- A calendar with all assignments and test dates will be given to students at the beginning of each unit.
- Students are responsible to make up all work as soon as possible following an absence.

GRADING

- The nine weeks grades will be computed as follows:
 - **40% Daily Work (includes classwork, homework, problem sessions, and quizzes and homework)**
 - **60% Tests**
- The semester grade is calculated using: 40% - 1st Nine Weeks; 40% - 2nd Nine Weeks; 20% - Semester Exam.
- Progress Reports will be sent out to all students at least twice during each nine week period.
- Students and parents can keep track of their grades via the internet site: **parentviewer.pisd.edu**

TESTING

- If a student is absent only the day before a test, he/she/they will be required to take the test as scheduled.
- Tests will be reviewed with students after grading.

RETESTING

- A retest date will be announced when each test is reviewed with students. The retest will be administered during a class period on a specific day. **No make-up test for the retest will be available.**
- Students may retest for credit up to a 90%.
- Students wishing to retest will be required to attend one tutorial session before the retest date to be eligible to take the retest. The assignment missed on the retest date must be completed as homework.

TUTORIALS:

Tutoring is available for AP Calculus AB on the following regular schedule:

Monday	Tuesday	Wednesday	Thursday
A/B Lunch – B1-268	A/B Lunch – B1-268	7:25-7:55 – B1-168 8:15-8:45 – B1-162 A/B Lunch – B1-268	A/B Lunch – B1-268

***NO TUTORIALS will be held after 0-hour on a test day**

***If you are in need of additional tutoring, please schedule times with your teacher.**

MAKEUP SCHEDULE:

Make-up testing is available on the following regular schedule:

Monday	Tuesday	Wednesday	Thursday
A Lunch – B1-162	B Lunch – B1-162	A Lunch – B1-162	B Lunch – B1-162

***You MUST have your student ID to make-up a test.**

STUDENT SURVEY

<https://tinyurl.com/carrellstudent2122>

PARENT SURVEY

<http://tinyurl.com/carrellparent2122>

AP Calculus AB Course Syllabus

First Semester Topics

Limits and Continuity
Differentiation
Contextual Applications of Differentiation
Analytical Applications of Differentiation

Second Semester Topics

Accumulation of Change
Integration Techniques
Differential Equations
Applications of Integration

AP Calculus AB 1st Semester Objectives

- Evaluate limits of algebraic and trigonometric functions and combinations thereof as x approaches a finite value or at infinity or determine that limits do not exist.
- Evaluate two-sided limits of algebraic and trigonometric functions and combinations thereof and determine continuity in terms of limits.
- Develop the concept of derivative as an instantaneous rate of change and determine a derivative as a limit, as a difference quotient, and from graphs and tables of data.
- Find first and higher order derivatives of elementary functions and their sums, differences, products and quotients.
- Find first and higher order derivatives of composite functions.
- Find derivatives of exponential, logarithmic, inverse functions, inverse trig functions.
- Find derivatives of inverse trig functions and use both logarithmic differentiation and L'Hospital's Rule.
- Find derivatives of implicitly and piecewise defined functions.
- Use the first derivative to find increasing and decreasing intervals, determine extrema, and apply the Mean Value Theorem and its geometric consequences.
- Use the first and second derivatives to find intervals of concavity, determine points of inflection, solve rectilinear motion problems and determine extrema using the second derivative test.
- Write equations of tangent and normal lines, and use the tangent line to estimate values of functions.
- Use derivatives to solve optimization and related rate problems.

AP Calculus AB 2nd Semester Objectives

- Use antiderivatives to evaluate indefinite integrals involving algebraic and trigonometric functions (sine and cosine only), solve first-order separate differential equations and represent the general solution of a differential equation using slope field.
- Find indefinite integrals following directly from derivatives of elementary functions and by substitution of variables.
- Find indefinite integrals following directly from derivatives of logarithmic, exponential and inverse trig functions.
- Apply the indefinite integral to solve separable differential equations (in particular, $y'=ky$ and the exponential growth and decay model) and find specific antiderivatives using initial conditions, including applications of motion along a line.
- Develop the concept of the definite integral by approximations using left, midpoint, and right Riemann Sums and Trapezoidal Rule and using basic properties of definite integrals to evaluate given integrals.
- Apply the definite integral to find total distance traveled given the velocity or acceleration and to find the area of the bounded region.
- Apply the definite integral to find total distance traveled given the velocity or acceleration and find the volume of a solid of revolution.
- Apply the First Fundamental Theorem of Integral Calculus to evaluate definite integrals, find the average value of a function, find the accumulation of a function over an interval given its rate of change, and interpret the meaning of a given definite integral.
- Apply the Second Fundamental Theorem of Integral Calculus to find the derivative of a function defined as a definite integral and identify the characteristics of a function defined as a definite integral.