

## TEXT BOOK

**Calculus: For the AP® course (2nd ed.).** Sullivan, M., & Miranda, K. (2017). New York: Bedford, Freeman & Worth.

## EXTRA HELP

1. **SAP 1:52-2:25pm Only Mondays and Thursdays**
2. Homework Club  
Monday and Wednesday 6:50am-7:20am

## MATERIALS NEEDED

Textbook, 3-ring binder, Pencils, TI-84 calculator, Laptop

## EVALUATION

- 50% Level Three Grades (Tests and Projects)**  
**30% Level Two Grades (Quizzes, Ted Talk Reports, Projects)**  
**20% Level One Grades (Do Nows, Exit tickets, Class Assignments, Homework)**

**Course Description:** AP Calculus AB is an introductory college-level calculus course. Students cultivate their understanding of differential and integral calculus through engaging with real-world problems represented graphically, numerically, analytically, and verbally and using definitions and theorems to build arguments and justify conclusions as they explore concepts like change, limits, and the analysis of functions.

**BIG IDEA 1: CHANGE**

Using derivatives to describe rates of change of one variable with respect to another or using definite integrals to describe the net change in one variable over an interval of another allows students to understand change in a variety of contexts. It is critical that students grasp the relationship between integration and differentiation as expressed in the Fundamental Theorem of Calculus—a central idea in AP Calculus.

**BIG IDEA 2: LIMITS**

Beginning with a discrete model and then considering the consequences of a limiting case allows us to model real-world behavior and to discover and understand important ideas, definitions, formulas, and theorems in calculus: for example, continuity, differentiation, integration, and series bc only.

**BIG IDEA 3: ANALYSIS OF FUNCTIONS**

Calculus allows us to analyze the behaviors of functions by relating limits to differentiation, integration, and infinite series and relating each of these concepts to the others.

**Format:** This class is geared toward the Common Core State Standards, and thus, the students will be actively learning through the Standards for Mathematical Practice:

1. Make sense of problems and persevere in solving them
2. Reason abstractly and quantitatively
3. Construct arguments and critique reasoning of others
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of structure
8. Look for and express regularity in repeated reasoning

Students will work individually and in groups throughout each class, and we will engage in discussion about the mathematical topics we are learning.

- **Expectations:** During each class new skills and concepts will be taught which are dependent upon lessons from the previous day. It is expected that students will be able to digest each day's material, go home and practice these skills, and then come in the next day ready to move on to the next day's lesson.
- **Homework Grading:** Students are expected to complete homework online the night before each test or quiz and it is due at the moment a student starts their test or quiz.. You must earn at least an 80% on your homework to receive full credit. NO LATE HOMEWORK WILL BE ACCEPTED.
- **Attendance:** If you are absent it is YOUR responsibility to get the missing work. Students should either check google classroom or go to the absent folder. Arrangements for making up missed tests/quizzes need to be made with me the first day back after an absence. I will NOT chase you down for missing work.
- **Academic Integrity:** Scholastic Dishonesty, any student who commits an act of scholastic dishonesty is subject to discipline. Scholastic dishonesty includes but is not limited to cheating, plagiarism, and/or the submission for credit of any work or materials that are attributable in whole or in part to another person. If any of the above mentioned actions occurs, there will be an investigation by the academy administrator and appropriate disciplinary action will be taken.

**The AP Exam** (AP® from [www.apcentral.collegeboard.com](http://www.apcentral.collegeboard.com))

**AP Calculus Test Date: Thursday, May \_\_th, 2023, 8 am – 11:30 am**

The AP Calculus AB exam is three hours long and has two sections. A multiple choice section with 45 questions that lasts for an hour and forty-five minutes and is worth 50% of your overall score. And a free-response section with 6 questions that last for an hour and thirty minutes that is also worth 50% of your overall score.

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### Course Outline

Unit	Exam Weighting (Multiple-Choice Section)
Unit 1: Limits and Continuity	10%–12%
Unit 2: Differentiation: Definition and Fundamental Properties	10%–12%
Unit 3: Differentiation: Composite, Implicit, and Inverse Functions	9%–13%
Unit 4: Contextual Applications of Differentiation	10%–15%
Unit 5: Analytical Applications of Differentiation	15%–18%
Unit 6: Integration and Accumulation of Change	17%–20%
Unit 7: Differential Equations	6%–12%
Unit 8: Applications of Integration	10%–15%