

AP Calculus AB

Mrs. Dowling

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Major Text

Calculus for the AP Course (4th edition), Sullivan/Miranda

Course Overview

Course Overview: AP® Calculus AB is equivalent to a first-semester college calculus course. Topics include functions, limits and continuity, derivatives, and integrals. The course will focus on applying the skills and concepts of calculus to modeling and solving problems across multiple representation

Prerequisites

Before studying calculus, all students should complete four years of secondary mathematics designed for college-bound students: courses in which they study algebra, geometry, trigonometry, analytic geometry, and elementary functions. (Algebra 1, Geometry, Algebra 2, Pre-Calculus). These functions include those that are linear, polynomial, rational, exponential, logarithmic, trigonometric, inverse trigonometric, and piecewise defined. In particular, before studying calculus, students must be familiar with the properties of functions, the algebra of functions, and the graphs of functions. Students must also understand the language of functions (domain and range, odd and even, periodic, symmetry, zeros, intercepts, and so on) and know the values of the trigonometric functions of the numbers 0 , $\pi/6$, $\pi/4$, $\pi/3$, $\pi/2$, and their multiples. (apcentral.collegeboard.com)

Instructional Philosophy

Calculus AB is primarily concerned with developing the students' understanding of the concepts of calculus and providing experience with its methods and applications. The course emphasizes a multi-representational approach to calculus, with concepts, results, and problems being expressed graphically, numerically, analytically, and verbally. The focus of the course is neither manipulation nor memorization of an extensive taxonomy of functions, curves, theorems, or problem types. Technology should be used regularly by students and teachers to reinforce the relationships among the multiple representations of functions, to confirm written work, to implement experimentation, and to assist in interpreting results. Through the use of the unifying themes of derivatives, integrals, limits, approximation, and applications and modeling, the course becomes a cohesive whole rather than a collection of unrelated topics. These themes are developed using all the functions listed in the prerequisites. (apcentral.collegeboard.com)

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Course Outline and Description

Unit 1: Limits and Continuity

Unit 2: Differentiation: Definition and Fundamental Properties

Unit 3: Differentiation: Composite, Implicit, and Inverse

Unit 4: Contextual Applications of Differentiation and Rate of Change

Unit 5: Analytical Applications of Differentiation including Analysis of Functions

Unit 6: Integration and Accumulation of Change including Techniques of Integration

Unit 7: Differential Equations

Unit 8: Applications of Integration

Course Assessment

Nine Weeks Grade = 60% (Tests) + 40% (Quizzes/Daily)

1st Semester Grade = (1st 9 weeks + 2nd 9 weeks) ÷ 2 x 80% + Semester Exam x 20%

2nd Semester Grade = (3rd 9 weeks + 4th 9 weeks) ÷ 2

Materials Required

1. TI-84 Plus or TI-84 Plus CE
 2. 3-ring binder
 3. Planner
 4. Notebook paper
 5. Pencils only
- **Project supplies will be announced as needed

Classroom Rules and Expectations

1. Bring your supplies to class every day.
2. Be on time, attentive and involved.
3. Be respectful to everyone.
4. Put all trash in the trash can as you leave the classroom.
5. No late work will be accepted

Extra Help

Extra help is available before/after school by appointment.

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Make-up Work

1. All make-up work is to be completed within three days of returning to school. Please see me to schedule make-up tests and quizzes.
2. It is *your* responsibility to get make-up work. Please let me know if you have any questions.
3. NO late work will be accepted.