AP Calculus

Patty Webb

**Student’s Responsibilities:**

1. Students are responsible for bringing all needed materials to class. No one will be allowed to leave to go to his locker.
2. Students are to be seated in their desks and ready to begin class when the tardy bell rings. I expect pencils to be sharpened, books/notebooks opened, and all mouths closed. The teacher, not the bell, dismisses class.
3. Students are responsible for material covered in class **(absent or not).**
4. If a student checks out early or checks in late, he must see me **that day** for missed assignments. Tardy students are responsible for the test on that day.
5. Homework assignments are posted through Plus Portals/Google Classroom. Students are responsible for any missed assignments. Please note that these assignments are also subject to change as unforeseen events often arise.
6. Test must be turned in when the bell rings to end class. Time management is a part of test taking.

**Grading Policy:**

Student’s grades will consist of the following components: BRs, FRQs, and tests.

BR and FRQ Average 40%

Test average 60%

\*\* In the event of complete distance learning, grading percentages MAY change.

**Homework:**

Homework will be assigned daily and is to be completed prior to the next day. Homework will be written on the whiteboard behind your desk. Homework is a must to master mathematical concepts.

**BR:**

BRs are quizzes. BRs are given often to check the student’s knowledge and understanding of the subject. BRs may be announced or **unannounced.**

**FRQ:**

FRQs are free response questions. These are the open-ended type of questions found on the AP exam. You will be given 3-4 of these on Monday of many weeks. These will be due the following Friday and will count as 1 BR grade. Collaboration with classmates is encouraged.

**Exemptions:**

There is no midterm or final exam for an AP course. The end of the year test is the AP Exam which will be given in May. We will also spend 2-3 weeks prior to the exam reviewing for the exam.

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Parent/Guardian Signature Date

AP Calculus AB Course Information

Summer Work

The students are required to complete a summer work packet which is due the first day of school. The work pack is a cumulative review of precalculus material that must be mastered in order to be successful in AP Calculus AB.

Course Overview

AP Calculus AB is roughly equivalent to a first semester college calculus course devoted to topics in differential and integral calculus. The AP course covers topics in these areas, including concepts and skills of limits, derivatives, definite integrals, and the Fundamental Theorem of Calculus. The course teaches students to approach calculus concepts and problems when they are represented graphically, numerically, analytically, and verbally, and to make connections amongst these representations. Students learn how to use technology to help solve problems, experiment, interpret results, and support conclusions.

Text

Larson, Ron and Paul Battaglia. *Calculus for AP.*  1st ed. Boston: Cengage Learning, 2015. The text approaches calculus from an early transcendental approach.

A graphing calculator is also a requirement for this course.

Semester One: Limits and Derivatives

The first semester concentrates on the two big ideas of limits and derivatives in calculus. Limits are approached graphically, numerically and analytically. Continuity, infinite limits, and limits to infinity are investigated. Much of the semester is devoted to the study of derivatives. All differentiation rules are explored (constant rule, power rule, product rule, quotient rule, chain rule, etc.). Transcendental functions and higher order derivatives are also studied. Related rates, optimization, and motion along a line problems are covered in this semester. Many major theorems are as well: MVT, IVT, First and Second derivative test, and L’Hopital’s Rule.

Semester Two: Integrals and Review

The second semester begins with the study of accumulation of area and Reimann sums using left, right, midpoint, and trapezoidal sums. From definite integration, the concept of indefinite integration is introduced. Much emphasis is placed on the Fundamental Theorem of Calculus (parts 1 and 2). U-substitution as a method of integration is covered extensively. Transcendental function integration is explored throughout. Differential equations are solved through slope fields and separation of variables. The applications of integration of area and volume (disc and washer method) culminate the topics covered. The remainder of the year is spent reviewing for the AP exam.