

AP Calculus AB and AP Calculus BC

Description of courses:

Both Calculus *AB* and Calculus *BC* are full year high school courses. Calculus *AB* is comparable to the first semester of college-level calculus and Calculus *BC* is comparable to the first two semesters of college-level calculus. Calculus *BC* is an extension of Calculus *AB* rather than an enhancement; common topics require a similar depth of understanding. Both courses are intended to be challenging and demanding. Students must select either Calculus *AB* or Calculus *BC*.

AP Calculus is primarily concerned with developing the students' understanding of the concepts of calculus and providing experiences with its methods and applications. The courses emphasize a multi-representational approach to calculus, with concepts, results, and problems being expressed graphically, numerically, analytically, and verbally. The connections among these representations also are important. Broad concepts and widely applicable methods are emphasized. Manipulation and computation are important outcomes; however they are not the core of these courses.

AP Calculus includes the following major topics:

- Functions, Graphs, and Limits
- Derivatives
- Integrals
- Polynomial Approximations and Series (Calculus *BC* only)

Text: Smith, Robert T. and Minton, Roland B. Calculus: Early Transcendental Functions (Third Edition). New York, NY: McGraw Hill, 2007.

Specific skills needed for success:

- Mastery of Algebra 1, Algebra 2 and Precalculus (PreAP level recommended for Calculus *AB* and required for Calculus *BC*).
- Students must be familiar with the properties of functions, the algebra of functions, and the graphs of functions including linear, polynomial, rational, exponential, logarithmic, trigonometric, inverse trigonometric, and piecewise defined.
- Apply knowledge and concepts to solve new and unique problems.
- Self-motivation and discipline needed to complete homework on a regular basis even when it is not graded.

Out of class commitment:

The time needed to complete homework problems and prepare for tests will vary depending on student background and preparation. Calculus *BC* will require approximately twice as much time outside of class as Calculus *AB*

Information to further explain the differences between Calculus AB and Calculus BC can be found on the next page.

AP Calculus AB Course Details

Recommended: 80 or above in PreAP Precalculus or
95 or above in regular Precalculus

Out of class commitment:

The completion of approximately *15 problems (about 30 minutes)* per class meeting is required. *Three major tests* are typically given each grading period that will require additional preparation time.

Contact person: Julie Burnside, room 227, jburnsid@houstonisd.org

What would you tell another student who is considering this course?

“You should have a strong background in Precalculus” and “in algebra.”

“Do your homework every day, seriously. Take notes.”

“The class isn’t hard if you pay attention and do your work.”

“This class is hard, but you learn a lot.”

Why are you glad you chose this course?

“It’s not as much work as BC, but at the same time requires you to think.”

“The course pace is not too fast and allows me to keep up with the concepts.”

“It is a good preparation for college.”

“There are real life applications in this course.”

AP Calculus BC Course Details

Recommended: 90 or above in PreAP Precalculus and
not recommended for students who complete regular Precalculus

Out of class commitment:

The completion of approximately *30 problems (about 60 minutes)* per class meeting is required. *Two major tests* are typically given each grading period that will require additional preparation time.

Contact person: Ed Mazzoni, room 214, emazzoni@houstonisd.org

What would you tell another student who is considering this course?

“Work hard, pay attention in class ... utilize time in class/during lunch to ask questions as the course moves very fast.”

“Be prepared to put a lot of work into it.”

“... the key is to listen.”

Why are you glad you chose this course?

“I learned a lot and got better at my study skills.”

“I love math ... it’s a very challenging, but fulfilling class; I learned a lot.”

“You figure out the basis behind a lot of formulas that you learned early on and calculus is extremely applicable.”