

## REQUIRED PRIOR KNOWLEDGE FOR AP CALCULUS

This is in no way a comprehensive list of all prior topics needed, but is an attempt to assist you in deciding which AP Calculus Course is a best fit for you. If you struggle at many of these topics or do not know the answers, that is an indication that AP Calculus AB is a better fit for you.

1. Students must have perseverance, if you routinely give up and wait for the teacher to do many of the assigned homework problems for you, BC is not the best choice as it is an accelerated paced class.
2. Students **MUST** have good trigonometric skills as well as good Algebraic Skills
  - a. Thinking you have the unit circle memorized is different than knowing how to derive the unit circle. Memorization in AP Calculus AB and BC is not sufficient to ensure success.
  - b. Students must know the Pythagorean identities, double angle formulas, reciprocal identities.
  - c. Students must be able to solve trigonometric equations.
  - d. Students must know the sine and cosine graphs
3. Students must know area and/or volume formulas from Geometry
  - a. Sphere
  - b. Cone
  - c. Prisms
  - d. Equilateral Triangle
  - e. Area and Circumference of a circle
  - f. Trapezoid
  - g. Other various shapes (Squares, rectangles, Cubes...)
4. Students need to know the differences between Polynomial functions, Rational functions, and Transcendental functions.
5. Students must know the graphs of  $y = \ln(x)$  and  $y = e^x$ , including asymptotes
6. Students need to have the Algebraic skills for:
  - a. Exponent Rules
  - b. Simplifying expressions
  - c. Logarithm Rules
  - d. Distance Formula
  - e. Solving equations of polynomial, rational, and transcendental functions.
7. Misc topics (You may/may not have gotten to these yet in Pre-Calculus that are required for AP Calculus BC, but are not required in AP Calculus AB)
  - a. Parametric equations
  - b. Vectors
  - c. Polar Graphing
  - d. Partial Fraction Decomposition

In AP Calculus, students must be able to understand the mathematics and derive formulas, not simply memorize procedures. Students must have a good work ethic, and be able to use a graphing calculator for graphing, finding points of intersection, finding zeros, and some other new Calculus stuff you will be taught.

# Which Calculus Course Should I Take

	Calculus	AP Calculus AB	AP Calculus BC
Honors Course	No	Yes	Yes
Will I get AP credit	No	Most colleges will give you credit for one Calculus course (either a quarter credit or a semester credit) if you score a 3 or better on the AB AP Exam. Some colleges will require a score of 4 or better. AP credit in general depends on several factors: each college has their own policy, your major, maximum AP credit allowed, etc..	Passing the BC AP Exam with a score of 3 or better will give you credit for two Calculus courses (either 2 quarters or two semesters). Again, this varies depending on the college and other factors. Students who take the BC exam are also given an AB sub score. For example,, a student might get a BC score of a 2 and an AB sub score of 3 - this would equal credit for one Calculus course.
What should I expect The class to be like?	This course uses a different Textbook than AP Calculus. Because we do not have to prepare for an AP exam, the 7 chapters are spread out over the entire school year which makes the pace slower. However, it is still Calculus which means the material is rigorous and challenging. The course is not easier than AP Calculus But it does go at a slower pace.	This course covers most of chapters 1-7 in three quarters - the material will be covered by the end of March, leaving the remaining time to review for the AP exam given in May. There will also be additional AP Material to do earlier in the year as practice Exams for the AP exam. The pace of this Course is faster than the regular Calculus course.	This course covers all chapters 1-10 in three quarters - the material will be covered by the end of March, leaving the remaining time to review for the AP exam given in May. There will also be additional AP Material to do earlier in the year as practice Exams for the AP exam. The pace of this Course is very fast. Calculus BC is not harder, it covers more material at a quicker pace.
What are the Pros & Cons of taking each Class?	It is very important for you to take a Calculus course before you leave High School if you are planning on attending a 4 year College. Depending on your major, many colleges require their freshman to take one or two semesters of Calculus. Having already been exposed to the course in High School can be a huge advantage to you. Taking this course will also be viewed favorably in terms of your acceptance to many colleges. A 4 <sup>th</sup> year of math is always encouraged by colleges. If you are a junior in Calculus, you may take AP Calculus your senior year or Statistics (regular or AP)	Some colleges will waive their Calculus Requirement depending on your AP score. This can be a very good thing for you if you decide on a non science major. It can be very comforting to know that you will never have to take a Calculus course in college. Also, remember that taking any AP course is Yet another "feather in your cap" towards Being accepted to college, especially to the More competitive colleges and impacted Majors. If you are a junior in AP Calculus AB, You may take Calculus 2AB BC or Statistics (regular or AP) your senior year.	Taking the BC instead of the AB course can Give you some advantages. You may end up with more AP Calculus credit, depending on your score. Taking BC can also make the difference if you are applying to prestigious colleges such as Stanford, UCLA, MIT, Harvard, etc... If you will be a junior taking Calculus BC, you should plan on AP Statistics for your senior year. Not taking math your senior year may be viewed unfavorably by colleges. If you are good at Math and Science, this is the course to challenge you, assuming you have the time to devote to the class.