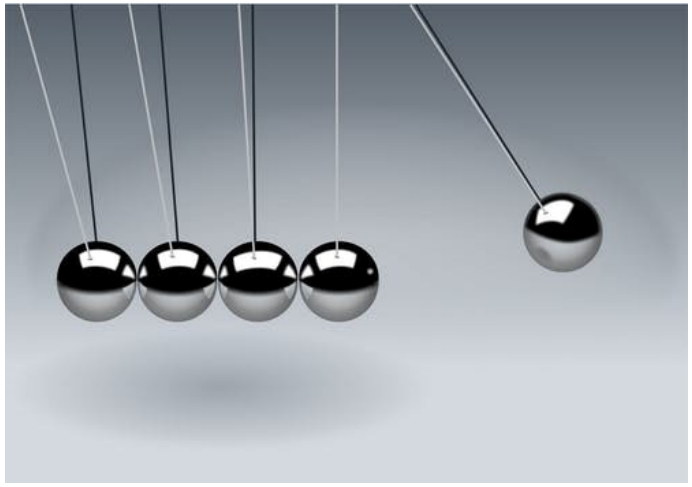
CALCULUS AT BMSS

http://blogs.sd41.bc.ca/mountain-math/

WHAT IS CALCULUS? WHY SHOULD I TAKE IT?

Calculus is the study of change and motion, in the same way that geometry is the study of shape and algebra is the study of rules of operations and relations. It provides a framework for modeling systems in which there is change, and a way to make predictions using such models.

Calculus provides the foundation to physics, engineering, and many higher math courses. It is also important to chemistry, biology, astronomy, business, economics and statistics.

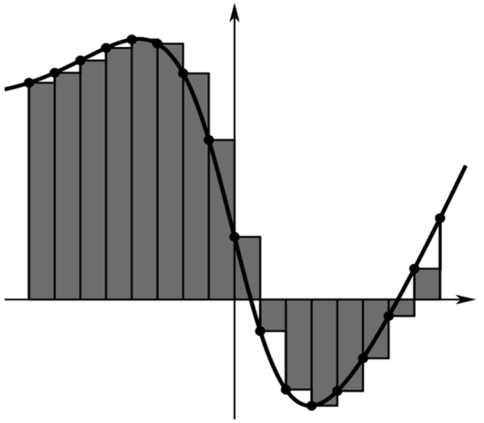


If you plan to take Calculus at a post-secondary institution, Calculus 12 will be a good preview course for you. If you are interested in learning calculus at the university level and obtaining university credit, you may consider taking AP Calculus. AP Calculus moves at a much faster pace, however the content covered in the two courses is similar.

WHAT YOU WILL LEARN

THE 3 MAJOR COMPONENTS OF CALCULUS 12 AND ADVANCED PLACEMENT CALCULUS:

1. **Limits**
   - Left and Right Limits
   - Limits at Infinity
   - Continuity
2. **Differentiation**
   - Rate of Change
   - Differentiation Rules
   - Higher Order; Implicit
   - Applications (e.g. curve sketching, related rates)
3. **Integration**
   - Approximations
   - The Fundamental Theorem of Calculus
   - Methods of Integration
   - Applications (e.g. volumes of rotation, average value)



Note: this is just an overview of the curriculum. If you would like a detailed course outline, please contact the Mathematics department head.
Ms. Reily: Jennifer.Reily@burnabyschools.ca

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FAQ

What Does It Take To Be Successful In Calculus?
Concepts in Calculus must be fully understood in order for you to become successful. You must go beyond learning the procedures and move toward having a conceptual understanding. In order to do this, you need to practice and work on a variety of problems. To be successful in Calculus, you need to be an active learner!

Who can take Calculus 12?
You can take Calculus 12 if you have successfully completed Pre-Calculus 12. Grade 12 students may take Calculus 12 and Pre-Calculus 12 in the same year.

Can I take Pre-Calculus 12 at the same time as Calculus 12?
Yes! It is very common for grade 12 students to do this. The teachers of these courses are aware that this occurs and they plan out the schedule carefully so students can be successful in both courses.

Could I Take Calculus In College or University?
Yes, you might. Calculus is required for many majors such as Biology, Chemistry, Physics, Engineering, Math, Statistics, Commerce, Business, and Computer Science. Please do your research and check the specific program you are interested in to find out if you will need to take Calculus.

Then Why Should I Take It In High School?
There are several advantages. Here it's a full year course so you'll have more opportunities to ask questions and really understand the concepts than at university where the class meets only a few times per week for one semester, often with hundreds of students in the class. First year Calculus is notorious for having a high failure rate, so having this extra practice in high school will be very valuable! If you take Calculus now, you will enter university ready to apply your skills in your first semester courses.

CALCULUS 12 VS. ADVANCED PLACEMENT … WHICH SHOULD I TAKE?

At Burnaby Mountain, we offer both courses. If students are interested in taking a Calculus course, they should think carefully about which course is the right choice for them.

What is Advanced Placement Calculus?
AP Calculus is a university level introductory course in Calculus with a curriculum prescribed by the College Board. Because it's an AP course, you can earn university credit for this course if you do well on the AP exam.

How is Advanced Placement Calculus different from Calculus 12
Both courses introduce students to differential and integral calculus. Calculus 12 provides an overall preview of a university calculus course. The content of AP Calculus is similar to that of Calculus 12, but it is covered in more depth and at a faster pace. Students prepare to write the AP exam in early May. Upon successful completion of the AP exam, a student may be given credit for the equivalent course at university.

How Hard is Advanced Placement?
It's a college course, so the expectations are high. You'll be expected to do homework every day. Preparing for the AP exam will require a lot of hard work and practice.

How do I apply for advanced placement and who is selected?
Students interested in AP Calculus should select it during course selection. Admission will be based on teacher recommendation and academic performance. Students must at least have an A in Pre-Calculus 11 and/or Pre-Calculus 12 and a G for their work habit.