SLSS AP® Calculus AB Overview

Teacher: Mr. W. Lin Year: January 2023 – May 2023

Textbook: Barron's AP Calculus or Single Variable Calculus Textbook #: _____

Email: wlin@sd38.bc.ca

Class website: https://sites.google.com/view/mrlinsclassroom

Video For Notes: https://www.youtube.com/c/WeilyLinMrLinsClassroom

Grading Scale	
A	86 – 100%
B	73 – 85%
C+	67 – 72%
C	60 – 66%
C-	50 – 59%
F	Below 50%

Final Grade	
Course work	100% School Based Mark
AP® Final Exam	100% AP® grade

AP® Calculus AB - Topics of Study

	Chapter
1. Functions	1
2. Slope and Limits	2
3. Concept of a Derivative	3
4. Special Derivatives	3
5. 2nd Derivatives	3
6. Applications of Derivatives	4
7. Fundamental Theorem of Calculus and the Anti Derivative	5
8. Techniques and Application of Anti-differentiation	5
9. Area under a Curve	6
10. Properties and Applications of Definite Integrals	6
11. Numerical Approximations and Slope Fields	

Note:

1. The AP® Final Exam for this course is written in May
2. Homework will be assigned daily. We ask that all work to be neatly shown and questions marked and corrected. The ability to make assigned deadlines is a course requirement. Marks will be deducted from late assignments.

AP® Calculus

A few goals and expectations

Remembering these goals and expectations will minimize wasted time and allow us to get more out of this class.

1) Bring all material to class everyday. This includes textbooks, calculators, rulers, paper, etc.
2) **Be on time!** Lateness wastes the teachers time, your fellow student's time along with your time.
3) Show respect for everyone in the class. **This includes not talking and paying attention when the teacher or a student is addressing the class**.
4) Respect everyone's right to learn. Everyone should contribute to a positive learning environment.
5) Cell phones must be turned **off** when not being used for learning tasks. They are to be used for learning purposes ONLY during class time. Cell phones or other electronic devices on your person during tests or quizzes will be considered academic misconduct, **zero** will be assigned.
6) You may ask the teachers permission to leave the room for legitimate reasons and you are required to explain the purpose of your leave. Do not abuse this privilege, if it is abused it will be taken away. Wandering halls constitutes an abuse of this privilege.
7) Students should remain seated and working until the end of the class. *Class does not end 2 minutes before the bell.*
8) Homework and assignments must be submitted on time. Marks will be deducted for late assignments.
9) Mathematics is a cumulative subject where new topics are based on previously learned material. Anything less than full attendance and attention will not allow you to learn to your ability.
10) I am available for help everyday 7:45 – 8:25am without appointment. Students can make arrangements with me outside of this timeframe.

TEST POLICY -

11) It is your responsibility to be aware of up coming tests and quizzes. **If you miss a test or quiz, a make up test will not be considered unless a message verifying the reason for your absence is left on my email by a parent or guardian**. My email address is **wlin@sd38.bc.ca**. It is your responsibility to find out **immediately** upon return to school, when the make up times are and to make the proper arrangements to attend, otherwise a mark of zero will be assigned.

12) The grade that you want to achieve in this course: ☐

What you will need to do to achieve this: _____

_____

These expectations have been read and understood by the student and Guardians.

Student Signature _____

AP® Calculus BIG IDEAS

Big Idea 1: Change

- Understand how and when change occurs
- Determine the rate of change
- Interpret how different equations are structurally similar
- Determine change over an interval of time
- Analyze functions for intervals of continuity or points of discontinuity
- Determine the applicability of important calculus theorems using continuity
- Find the rate of change based on the area of a region between a curve and the x-axis
- Model motion not constrained to a linear path

Big Idea 2: Limits

- Understand limits, and making sense of features of functions and their graphs
- Mathematical properties and rules for simplifying and evaluating limits applies to differentiation
- Prove a limit exists
- Recognize the connection between differentiability and continuity
- Interpret the meaning of a derivative within a problem
- Solve problems involving the slope of a tangent line
- Solve problems involving related rates, optimization, and rectilinear motion
- Solve problems involving rates of change in applied contexts
- Solve how the sum if infinitely discrete terms can be a finite value represented in a continuous function.

Big Idea 3: Analysis of Function

- Close loopholes so a conclusion about a function is always true
- Understand how the change of two units of measurement relate to one another, and the rate at which they change.
- Interpret what numbers might tell you about other rates of change
- Apply the Mean Value Theorem to justify a conclusion
- Include additional information in a sound mathematical argument that optimizes a simple equation
- Integrate to find areas related to differentiating to find slopes
- Calculate derivatives and antiderivatives
- Evaluate definite integrals
- Analyze graphs defined using parametric equations or polar functions using chain rules.
- Apply definite integrals to problems involving the average value of a function, motion, and area and volume.
- Analyze differential equations to obtain general and specific solutions
- Interpret, create, and solve differential equations from problems in context