Sage Creek High School

Course Syllabus

AP Calculus BC

2025-26

Course Title	*This Course Satisfies the UC/CSU a-g Requirement:*
AP Calculus BC	"c" – Mathematics

Purpose of The Course

The students will engage in a variety of activities that promote understanding of the fundamental concepts of Calculus and reinforce the skills necessary to solve problems. The course will emphasize development of problem solving skills, which are necessary for success on the AP Calculus exam. Since this is an AP class, the assumption is that the students are interested in and capable of doing university level work. **Students are expected to take the AP Exam.**

The following excerpt is taken from the College Board website:
"AP Calculus AB and AP Calculus BC focus on students' understanding of calculus concepts and provide experience with methods and applications. Through the use of big ideas of calculus (e.g., modeling change, approximation and limits, and analysis of functions), each course becomes a cohesive whole, rather than a collection of unrelated topics. Both courses require students to use definitions and theorems to build arguments and justify conclusions. The courses feature a multirepresentational approach to calculus, with concepts, results, and problems expressed graphically, numerically, analytically, and verbally. Exploring connections among these representations builds understanding of how calculus applies limits to develop important ideas, definitions, formulas, and theorems. A sustained emphasis on clear communication of methods, reasoning, justifications, and conclusions is essential. Teachers and students should regularly use technology to reinforce relationships among functions, to confirm written work, to implement experimentation, and to assist in interpreting results."

"AP Calculus AB is designed to be the equivalent of a first semester college calculus course devoted to topics in differential and integral calculus. AP Calculus BC is designed to be the equivalent to both first and second semester college calculus courses. AP Calculus BC applies the content and skills learned in AP Calculus AB to parametrically defined curves, polar curves, and vector-valued functions; develops additional integration techniques and applications; and introduces the topics of sequences and series."

Prerequisites

Before studying calculus, all students should complete the equivalent of four years of secondary mathematics designed for college-bound students: courses that should prepare them with a strong foundation in reasoning with algebraic symbols and working with algebraic structures. Prospective calculus students should take courses in which they study algebra, geometry, trigonometry, analytic geometry, and elementary functions. These functions include linear, polynomial, rational, exponential, logarithmic, trigonometric, inverse trigonometric, and piecewise-defined functions. In particular, before studying calculus, students must be familiar with the properties of functions, the composition of functions, the algebra of functions, and the graphs of functions. Students must also understand the language of functions (domain and range, odd and even, periodic, symmetry, zeros, intercepts, and descriptors such as increasing and decreasing). Students should also know how the sine and cosine functions are defined from the unit circle and know the values of the trigonometric functions at the numbers 0, pi/6, pi/4, pi/3, pi/2, and their multiples. Students who take AP Calculus BC should have basic familiarity with sequences and series, as well as some exposure to parametric and polar equations.

Course Materials

Textbooks:
Calculus for AP: A Complete Course. by Stewart and Kokoska
Graphing Calculator

Grading Scale

97-100%	A+	77-79%	C+
93-96%	A	73-76%	C
90-92%	A-	70-72%	C-
87-89%	B+	67-69%	D+
83-86%	B	63-66%	D
80-82%	B-	60-62%	D-
		0-59%	F

Grade Weights and Policies

Assignments/Group Activities	10%
Quizzes	20%
Exams	50%
Final Exam	20%

* I do not offer retakes for exams due to low performance. However, I will replace your lowest exam score with your final exam score, if it helps your grade.

- Our program and instructional decisions are based on research; therefore we must maintain the integrity of the program in line with the College Board course description.
- We are primarily concerned with learning outcomes, not GPA.
- Progress is important to student achievement.
- Grades should not be a form of punishment.
- Students' grades will accurately reflect their academic achievement.

I determine grades using a variety of key tasks. Key tasks include exams, quizzes, homework assignments, and group assignments. Different assessment tasks have different intended outcomes and are consequently scored using different measures. Overall, students' grades will reflect their achievement toward understanding and applying the curriculum of AP Calculus. A student who earns an A has done exemplary work. **Regrettably, hard work is not always enough to earn an A in Calculus.**

Homework Policy

Homework is by its very nature intended to support the learning process. Sometimes homework exercises are for students to practice skills. Other times, the purpose will be to explore a concept beyond the classroom discussion. In either case, the value in homework is that it be completed, with understanding, when assigned. The ability of the student to perform on learning tasks and assessments depends on managing responsibilities of the class, including homework completion. If a student misses multiple assignments and/or fails to exhibit clear understanding of the homework tasks when called upon, they may be asked to attend a lunchtime HW session to make up or review assignments.

Because homework completion is essential and expected, students must complete homework on time.. Late assignments will not be accepted for credit as policy. The teacher may extend an assignment deadline on rare occasions when circumstances are appropriate, but this will be at the teacher's discretion and depend on frequency and reason for lateness.

Communication and Expectations

- All assignments including relevant links, notes, and any worksheets for each lesson and unit will be posted on Google Classroom.
- Grades will be updated on Aeries on a weekly basis.
- Both students and parents should use Gmail to communicate with their teacher from home.

Be your **BEST**
Build **E**mpower **S**how Spirit **T**railblaze
Together, we are being our Bobcat **B.E.S.T.** actions.

CUSD cell phone and device policy
High School: High school students may not use cell phones, smart watches, pagers, or other mobile communication devices during instructional time. Mobile communication devices shall be turned off and kept out of sight during instructional time. *Instructional time* is defined as any scheduled class period and any other time during the school day when students are expected to be engaged in a learning activity.
Violation Protocol: **First Offense**: Student warning
Second Offense: Student warning, teacher contact to parent recommended, teacher/staff may take device.
Third Offense: Teacher/staff takes device to be returned to student at the end of class period, teachers contact parent, referral to office for documentation in student information system.
Fourth Offense: Device delivered by teacher/staff to office for pick up after school, contact parent, referral to office for documentation in student information system. Additional progressive discipline measures will be employed as needed.

Teacher's Role
My responsibility is to provide authentic learning experiences for students to engage the content of this course, to make connections between topics, and to apply knowledge gained in routine and non-routine contexts. I appreciate the fact that students enter the course with varying levels of interest and ability. I take responsibility to meet the individual needs of each student towards gaining proficiency. I will make you work for your knowledge. I will make you explain what you know and what you think. I will put you in situations where you need to figure things out to succeed. I will not accept your second best.

Student's Role
Engage in classroom activities. Come to class on time and ready to learn and participate. Be prepared with complete assignments. Success in a rigorous class like AP Calculus requires you to take initiative to find answers to questions you have. Simply saying, "I don't get it." And waiting for the next class will not earn you an A. Reflect on your progress. Make opportunities to either seek or give help within the classroom. Take advantage of the resources available to help you.

Parent's Role
Provide a focused work environment for your child at home. Talk with your student about and look at the work done in class and at home. Check regularly for updates on assignments and progress. Encourage your student to form study groups with classmates and to visit tutoring regularly. Consider options for additional tutoring, as needed. Email any questions to your student's teacher.

Academic Assistance
In case of an absence, students should refer to posts in Google Classroom and/or a friend to find out the notes and assignment(s) that were missed. Students will have as many days as they were absent to make up the work. After school office hours/tutoring will be available each week for calculus students specifically (days TBD). Students will be provided specific days in class and updated if these change.

Pacing Guide: Sections &Text Alignment

Unit 1 – Limits, Continuity, and Derivative

(approximately 10 days)

2.1

2.2

2.3

2.4

3.1

3.2

Unit 2 – Techniques of Differentiation

(approximately 13 days)

3.3

3.4

3.5

3.6

3.7

3.8

3.10

3.11

Unit 3 – Applications of Differentiation

(approximately 16 days)

3.9

4.1

4.2

4.3

4.5

4.6

5.1

Unit 4 – Integration

(approximately 15 days)

5.1

5.2

5.3

5.4

5.5

5.6

6.2

6.3

6.4

Unit 5 – Area/Volume

(approximately 10 days)

5.6

6.1

6.5

6.6

Unit 6 – Techniques of Integration

(approximately 16 days)

7.1

7.2

7.3

7.4

7.5

7.6

Unit 7 – Differential Equations

(approximately 10 days)

8.1

8.2

8.3

Unit 8 – Parametric/Polar Functions

(approximately 15 days)

10.1

10.2

10.3

10.4

Unit 9 – Series A

(approximately 11 days)

9.1

9.2

9.3

9.4

9.5

9.6

9.7

Unit 10 – Series B

(approximately 11 days)

9.8

9.9

9.10

*****AP Exam*****

Unit 11 – Matrices Review

(approximately 10 days)

Supplemental

Unit 12 – Trig Review

(approximately 10 days)

Supplemental

NOTE: Post AP Exam Units are subject to change.