

# Expectations for Advanced Placement BC Calculus

Mrs. Killeen

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1. **Materials** – Please have all materials with you when you come to each class.

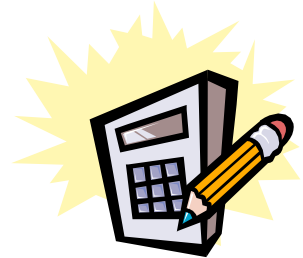
A. *Pencil, Colored Pencils, Highlighters, Straightedge*

B. *Paper – both lined and graph*

C. *Graphing Calculator* (TI-83+ or TI-84) – must have name on it

D. *Textbook* CALCULUS, NINTH EDITION, Larson, Hostetler, and Edwards  
Houghton Mifflin, Copyright 2010, ISBN-13:978-0-547-21289-0

E. *Notebook-3 dividers (notes, assignments, quizzes/tests)*



2. **Notebooks/Assignments** –You are expected to keep your notebook organized and up to date with all notes, assignments, and quizzes/exams. An organized notebook is essential as you prepare for the AP/CU exam. An assignment sheet will be given to you at the beginning of each chapter. Only assignments turned in on time will be awarded full credit. Your score will be determined by a combination of accuracy and completion. If you are having a hard time with the assignment, turn in what you have—and you will be awarded a grade based on completion. Then get the help you need to complete the assignment, do the problems on a clean sheet of paper, staple it to the incomplete assignment and turn it in by the unit test—you can get points back!! Late homework is accepted for partial credit only until exam day for that chapter.

3. **Grades** – Term grades will be based

20% assignments

60% unit exams

20% final exam

4. **Tardies/Absences** – The standard BCHS attendance policy will be enforced. If you are involved in a school activity that requires you to be absent, please see me prior to the absence to arrange any make up work. If you attend school for at least one period or more, but are absent for calculus class, you are still responsible for turning in assignments due that day and/or taking any test or quiz.

5. **Extra Help** – It is imperative that you take advantage of the extra help opportunities that are available. There are access periods each week as well as tutor rooms every period. In addition, BC Fun Nights will be held for each chapter, with additional nights added when needed. (These nights are fun study sessions that are STRONGLY recommended and SUPER fun!!!).

6. **Exams** – On major exams you will have an opportunity to raise your grade by doing a point challenge. The point challenge must be done outside of class (during tutor room, access, etc...) and must be done **before** the next chapter exam. You will be asked to make corrections on your original exam and then to demonstrate your knowledge of the essential concepts by doing similar problems to those missed. You can earn half of the points back that you missed on the original exam up to an 89%.

7. **Advanced Placement Credit / CU Succeed College Credit** – You may take this course for Advanced Placement credit or CU credit. I will talk to you about this in length before you and your parents make this important decision.

8. **Academic Dishonesty (Plagiarism/ Cheating)**

Plagiarism is defined in the Jefferson County Public Schools Conduct Code Book as “knowingly copying or using the academic work of another and presenting it as his or hers without proper attribution.” If a student is found to be cheating (including plagiarizing or giving others their work), the following will occur:

- A grade of “F” or a zero will be issued for the activity/test/assignment/project. If cheating occurs on the final exam, after calculating the revised semester grade (including the zero), the semester grade will then be lowered by one grade.
- If cheating continues, the teacher may refer the student to the appropriate administrator to determine the consequences for his/her continued cheating. The student’s parent/guardian will be notified by the teacher.
- In the event of a student cheating on a major project, the teacher will take this matter directly to the student’s administrator. The administrator will listen to the facts, determine a course of action, and make a recommendation to the principal.

**Special Procedures In Class:**

- Absolutely no electronic devices (phones) will be allowed during any testing situation. All book bags will be required to be at the front of the room during any test at Bear Creek. *Make sure you bring a calculator.*
- If you are found to have any electronic device on your person during any test, you will receive an automatic zero on the test and the matter will be forwarded to administration.
- The memory on any graphing calculator will be expected to be cleared before and after every test and shown to the teacher. (2<sup>nd</sup>,+, 7,1,2). All scrap paper and/or note cards will be turned in at the end of every test.

# Advanced Placement BC Calculus Syllabus

## Limits and Their Properties

- Introduction to Limits
- Finding Limits Graphically and Numerically
- Properties of Limits
- Techniques for Evaluating Limits
- Continuity and One-Sided Limits
- Infinite Limits

## Differentiation

- The Derivative and the Tangent Line Problem
- Basic Differentiation Rules and Rates of Change
- The Product and Quotient Rules
- Higher Order Derivatives
- The Chain Rule
- Implicit Differentiation
- Related Rates

## *Applications of Differentiation*

- Extrema on an Interval
- Rolle's Theorem
- Mean Value Theorem
- First Derivative Test
- Second Derivative Test
- Limits at Infinity
- Summary of Curve Sketching
- Optimization Problems
- Differentials

## Integration

- Antiderivatives
- Sigma Notation and Area
- Riemann Sums and Definite Integrals
- Fundamental Theorem of Calculus
- Integration by Substitution
- Numerical Integration

## Logarithmic, Exponential, and Other Transcendental Functions

- Natural Logarithmic Function and Differentiation
- Natural Logarithmic Function and Integration
- Inverse Functions
- Exponential Functions and Differentiation
- Exponential Functions and Integration
- Bases other than  $e$  and Applications
- Differential Equations
- Inverse Trigonometric Functions and Differentiation
- Inverse Trigonometric Functions and Integration

## Applications of Integration

- Area of a Region Between Two Curves
- Volume: The Disc Method
- Arc Length and Surfaces of Revolution
- Work
- Project volume of Solids with Known Cross Sections.

## Integration Techniques

- Basic Integration Rules
- Integration By Parts
- Trigonometric Integrals
- Partial Fractions
- Integration by Tables
- Indeterminate Forms and L'Hopital's Rule
- Improper Integrals

## Infinite Series

- Sequences
- Series and Convergence
- Integral and p-Series
- Comparison of Series
- Alternating Series
- Ratio and Root Tests
- Taylor Polynomials
- Lagrange form of the remainder
- Power Series
- Representation of Functions by Power Series
- Taylor and Maclaurin Series

## Plane Curves, Parametric Equations, and Polar Coordinates

- Plane Curves and Parametric Equations
- Parametric Equations and Calculus
- Polar Coordinates and Polar Graphs
- Area and Arc Length in Polar Coordinates

## Vector-Valued Functions

- Differentiation and Integration of Vector-Valued Functions
- Velocity and Acceleration