

# Advanced Placement BC Calculus Course Syllabus

S.Hogan

## **Instructor:**

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215.684.5079

E-mail is the best way to contact me. On weekdays, I typically respond within 24 hours. On weekends, my response may take longer.

## **Required Materials:**

- AP Approved Graphing Calculator—Check out the website at: <https://apstudent.collegeboard.org/apcourse/ap-calculus-ab/calculator-policy>
- Five-Subject Notebook—All five subjects need to be dedicated entirely to this course. I talk fast and I write a lot. Trust me, you will need a large notebook. If you are a binder person, that's fine, but you will need a large binder just for this course.
- Writing Utensils—I don't care what kind, but you need to have multiple with you in case some break.
- RECOMMENDED: Index Cards for study purposes—You will be learning many new formulae this year, more than you have in your entire math career.

## **Textbooks and Resources:**

- Finney, Thomas, Demana, Waits. *Calculus: Graphical, Numerical, Algebraic*. (Blue Book)
- Course Website: <http://www.shanhogan.com/apbc--ap-bc-calculus.html>
- Ma, William. *5 Steps to a 5 AP Calculus AB*. McGraw Hill, 2006, 2<sup>nd</sup> Edition.
- AP Review Binder (this will be your textbook after Spring Vacation)—Contains released AP problems that will be assigned as homework and classwork for the last month of class.
- Shmoop (<http://www.shmoop.com/>) —This site required a site license but I believe that we have access to it as a school. If so, I will provide you with all of the information that you need to register. I believe Ms. Aglira also uses this site extensively for AP English Literature.
- The Khan Academy (<http://www.khanacademy.org/>)—This free site has videos and interactive tutorials with essentially infinite practice exercises available on almost all mathematical topics.

## **Course Description:**

This is a college-level course designed to cover two semesters of single variable calculus. The study of calculus, the mathematics of motion and change, is divided into two major topics: differential and integral calculus. Differential calculus enables us to calculate rates of change, to find the slope of a curve, and to calculate velocities and accelerations of moving bodies. Integral calculus is used to find the area of an irregular region in a plane, to measure lengths of curves, and to calculate centers of mass of arbitrary solids. The "BC" portion of this course focuses primarily on the concept of infinite sequences and their behavior. A more succinct list of topics is included below in a brief overview.

Problems will be presented and solved in four distinct ways: analytically, numerically, graphically, and verbally. Students will use a graphing calculator to determine the value of a derivative at a point, to find the value of a definite integral, to graph a function in any window, and to solve an equation.

The first seven months of the class will be devoted to studying the topics covered in typical college Calculus I and II courses. The next three weeks will be review and preparation for the AP exam. Throughout the year, information concerning the administration, scoring, and content of the exam will be discussed. After taking the exam in May, students will complete projects relating to the topics they have studied in this class during the year. **In order to receive an AP distinction on your official high school transcript you must take the Advanced Placement BC Calculus test offered by the College Board on May 9, 2017.**

## **Brief Topic Overview:**

- Limits, Derivatives, Applications of Derivatives, Integrals, Applications of Integrals, Techniques for more complicated Integration, Series and Sequences, Vectors, Parametrics, and Polar

## **Classroom Expectations:** We are expected to be...

- Present- Attend class every day. If you are absent, you are required to bring a note explaining the absence. Unexcused absences result in a 0 for participation for the day and will thus hurt your grade significantly. However, even excused absences are a bad idea.

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- Punctual-Per school policy, 7 or more unexcused latenesses in a quarter earns you a 3 in behavior. Again, even excused latenesses are a bad idea. We cover material quickly and you will be behind from the moment you enter the room.
- Prepared-Have multiple writing utensils in case one breaks. Have a graphing calculator (TI-83, 83 plus, or 84.) Be in uniform (this means you are wearing black or khaki bottoms and that the TOP LAYER of your shirts says Carver, HSES, or E&S.) Have a notebook or binder that you use specifically for this class.
- Participating-Take notes. Ask questions. Make flashcards. Work on problems with your peers. "Participating" looks different for everyone, but you will not learn anything if you are not actively using your brain during class.
- Pleasant-You do not have to like everyone in class (including me) but you do need to act in a polite, respectful manner to everyone.
- Please note that I said "WE are expected to be" ...If I am not complying with our classroom expectations, you have every right to politely call me out on it. In all honesty, sometimes I am not entirely pleasant. Just remind me :o)

### **Classroom Procedures:**

- Class Time: This year, the AP Calculus course will be held during a single, regular length period.
- Seating Assignments: I do not assign seats. Choose your seat at the beginning of the year and stay there. I will not change your seat unless your location in the room is a problem for you or those around you. If you wish to change seats, either relocate to an empty seat or ask someone to switch with you.
- Hall Passes: Please do not ask to go to the restroom. There is a designated hall pass and a sign out book by the door. Sign out, take the pass, and sign back in. The hall pass is for trips to the restroom, water fountain or locker and is **for five minutes only**. Do not use a hall pass to go to the nurse, counselor, or office. You must have a signed note to go to these locations.
  - Nurse/Counselor/Office/Library/Etc: Trips to locations other than the restroom require a note. You must report to class FIRST and get a note signed by Ms. Hogan to visit any of these locales. Notes from these locations WILL NOT be accepted as an excuse to be late to class. If it is an emergency, the adult responsible for the designated location may call Ms. Hogan to explain your tardiness or absence.
- Cell Phones: Per school policy, cell phones are not permitted during the school day with the exception of in the lunchroom during lunch. If you have a cell phone out in class, it may be confiscated and given to Dean Rivera. Repeated failure to comply with the school cell phone policy may result in a three in behavior.
- Other Electronic Devices: Per school policy, electronic devices and headphones are not permitted during the school day with the exception of in the lunchroom during lunch. If you have a cell phone out in class, it may be confiscated and given to Dean Rivera. Repeated failure to comply with the school electronic devices policy may result in a three in behavior.
- Food: Students are not permitted to have food in this classroom.
- Beverages: Students are not permitted to have beverages in this classroom except a sealable bottle of water.
- Absences: You are required to show me a note for all excused absences. If you are attending school but will be unable to attend my class (sports, assemblies, etc) you must see me prior to missing my class. If you do not see me before you miss my class, you will receive a cut. Missing my class, regardless of the reason, will make it difficult to pass.
- Cuts and Lateness: Per school policy, each cut will result in a deduction of five percentage points from the current marking period grade. Any cut will automatically result in a three in behavior. Seven tardies will result in a three in behavior.
- Academic Dishonesty: Academic dishonesty includes but is not limited to the following: copying another student's work, presenting someone else's work as your own (plagiarizing,) using unauthorized materials (text, dictionary, calculator, cheat sheet etc) during an assessment, and communicating in any way with other students during an assessment. If you are not sure whether something is academically dishonest, ask me. If you are afraid to ask then assume the behavior is academically dishonest. If you are caught being academically dishonest on an assignment or an assessment, you will receive a zero for that work. You will not be permitted to drop that grade and your parents/guardians will be notified regarding your unacceptable behavior. Cheating on an assessment will result in an automatic three in behavior. If there is a reasonable suspicion of academic dishonesty, you may be required to retake an alternate version of the assessment and your scores will be averaged to receive a final grade for that assessment.
- AP Reviews: Starting in late March or early April, we will have AP Reviews after school. Snacks will be provided on these days.

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- E-mail Communication: Assignments and information will be e-mailed to you. You are responsible for checking your email daily and printing necessary materials. It is imperative that you provide me with an email address that you can check often. Some items will only be e-mailed, however, most materials will also be available on the website. Email is ALWAYS the best way to contact me.
- Late Work: I do not accept late work. If you have been absent, work is due within a day of your return or it will not be accepted. Provisions can be made for extended absences.

### Assignments:

- Homework (20%)—All HW assignments for the year are already posted on the course website. Homework assignments consist of a large number of problems (often between 50 and 100.) It is your job to budget your time in completing this work. To receive full credit, show all work, number each problem, and write problems in ascending numerical order. If you use multiple pages, they must be stapled in the upper left corner. You may hand in your homework early but no late homework will be accepted. No exceptions. You may ask HW questions all week. You may work together on HW but copying will not benefit you in anyway. If you do not understand the material, you will fail the exams and thus the course.
- Types of HW:
  - Chapter Homeworks—Problems are found in the textbook.
    - HW Review will be held the day BEFORE the chapter exam.
    - Assignment is due the day AFTER the chapter exam.
  - Calculus Competition Homework—Problems are part of a lengthy PDF that will be printed for you.
    - We will spend several days in class working through these problems. There will not be a HW Review day.
    - Assignment is due the day AFTER the calculus competition.
  - AP Review Homeworks—Problems are found in the AP Binder that will become your new “textbook” in the final month and a half of AP preparations. Due dates for these assignments will be announced.
    - At this point in the year, we will no longer have instruction. Class will just be time to work on AP released problems. There will not be a HW Review day.
    - Assignments will be due on a day that has been clearly designated both in class and via email.
- Assessments (80%)—All exam review packers for the year are already posted on the course website.
  - Summer Project/Placement Exam—The summer project will be worth 50 points. It is being graded largely on completion. The placement exam is also worth 50 points but it is graded for correctness. The grade you will receive for your summer project is the sum of the two.
  - Chapter Examinations—Chapter exams will consist of AP level questions. These exams are very difficult. After the exams, we will spend two days correcting missed questions and you will earn half credit back.
  - Quizzes (Pop and Half-Day)—Some quizzes will be announced. Some quizzes will not be announced. You will NEVER be permitted to use notes. Quizzes will be AP-level difficulty and pacing.
  - Calculus Competition—Both the individual score (out of 24) and the team score (out of 9) will count towards this exam grade.
  - Midterm Examination—This will be approximately half of an AP exam. It will be graded on the AP scale.
  - Final Examinations—The final will be comprised of two separate parts. In the three weeks between the two parts, the goal is for students to review intensely to improve understanding of AP material.
    - Final Part 1: A full-length AP exam, administered in the first half of April. You will miss classes to take this exam. This exam will be graded on an AP scale. It will count as 1/3 of your final exam grade.
    - Final Part 2: Over two days in class, we will take what is equivalent to half of an AP exam. This exam will be graded on the AP scale. It will count as 2/3 of your final exam grade.

### Grading Procedures:

This is a college level course. As such, you will not receive credit simply for attempting the work or for showing up to class. In order to receive credit, you must successfully complete the assignments correctly and perform well on the examinations. All exams based on AP questions will be graded based on the AP scoring rubric.

### Academic and Behavior Grades on Report Cards:

- What constitutes a “3” in behavior?
  - Seven or more tardies

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- Cutting my class (even once)
  - Academic dishonestly on an assessment
  - Repeated failure to comply with the cell phone/electronic devices policy
  - Repeated, excessive behavioral issues (inappropriate language, acting out in class, abuse of the hall pass, etc)
- What does a student have to do to earn the “AP curve?”
    - To earn the “AP curve” and be guaranteed a grade of at least 65 on your report card, you must complete every single assignment in a quarter. If you fail to complete even one homework, exam, exam correction, or any other assignment then you will not receive the AP curve that quarter.

## **AP Reviews and Extra Credit:**

I keep a running tally of all AP review hours that each student accrues. This includes AP bootcamp, after school reviews, and any weekend reviews. At the end of the year, I award cumulative grade points to students who have attended reviews. The students who have attended the most review hours will earn the most cumulative grade points.

- AP Bootcamp—Nine days of review in August (before school starts) for 1.5 hours each day.
- AP Afterschool Reviews—Starting in late March or early April we will have reviews afterschool from 3PM to 6PM. Snacks will be provided at these reviews.
- AP Weekend Reviews—Before major exams, we may have weekend reviews if sufficient interest exists.

## **AP Multipliers and Grades:**

Advanced Placement course grades are multiplied by 1.2 in all grade point average calculations. This means that an 80 in this course is akin to a 96, which is 80 times 1.2, in your GPA. Please see the chart below to see the grade conversions.

Grade that appears on my report card	Grade that is used for GPA calculations
65	78
70	84
75	90
80	96
85	102
90	108
95	114
100	120

If you are working diligently, completing every assignment, you will pass my course with at least a 65. You will only fail my course if you choose to do so. That said, it is difficult to earn an A in my class. Students are required to take the AP AB Calculus Exam on May 9, 2017 in order to receive AP credit and thus the AP multiplier.

## **Personal Note:**

This is not an easy course. You will be challenged mathematically for the duration of the course. Most of you are in other AP courses that are equally rigorous. Sometimes, you will want to quit. Please come speak with me before school, after school, or during my lunch if you need help or are feeling frustrated. I am always happy to help or to listen while you vent your frustrations. Also, it will benefit you immensely to work through problems with your fellow students and to ask questions about the homework in class.

In the words of my favorite fictional teacher:  
“It is our choices...that show who we truly are far more than our abilities.”  
-Albus Dumbledore

Choose to work hard. Choose to give it your all even when you want to quit. Choose those extra few minutes of study time or tutoring after school. You are all good at math. You all have the ability to get an A in this class and to get a 5 on the AP Exam. It is your job to make the choices that will get you there.

**SIGN BELOW AND RETURN TO MS. HOGAN BY FRIDAY SEPTEMBER 15, 2016.**  
**This is an assignment worth 10 points.**

By signing below, I indicate that I have read and understand all information, rules, and regulations for this course. I am aware that there will be no make-up assessments in the case of absence. I understand that a missed assessment will result in a zero and that cuts and tardiness will automatically earn a three in behavior. I understand that, aside from the AP extracurricular reviews, there will be no extra credit of any kind during this course and that no assignments will be curved. I understand that, in the event of absence, I am responsible for getting missed assignments from the course website ([www.shanhogan.com](http://www.shanhogan.com)), by contacting my peers, or by e-mailing Ms. Hogan ([smhogan@philasd.org](mailto:smhogan@philasd.org)). I further understand that I am expected to complete all work on time despite my absence and that exceptions will only be made for prolonged absences or other extenuating circumstances. I take full responsibility for complying with all rules and regulations. Most importantly, I understand that this course will be CHALLENGING and that I will be rewarded for my efforts with a 1.2 multiplier on my GPA. I know that I will have to work every day for this class and that, although Ms. Hogan will gladly help me, she does not tolerate whining and complaining. Finally, I am aware that in order to receive AP credit (and thus the 1.2 multiplier) I must take the AP BC Calculus Examination on May 9, 2017.

**Student and parent/guardian, sign below to indicate that you understand the policies outlined in this syllabus.**

**PARENT/GUARDIAN INFORMATION**

<b>Parent/Guardian Name (Print)</b>	
<b>Parent/Guardian Signature</b>	
<b>Parent/Guardian Phone Number(s)</b>	
<b>Parent/Guardian Email</b>	

**STUDENT INFORMATION**

<b>Student Name (Print)</b>	
<b>Student Signature</b>	

**\*\*BACK TO SCHOOL NIGHT IS THURSDAY SEPTEMBER 14, 2016\*\***  
**\*\*PLEASE FEEL FREE TO COME ASK QUESTIONS BEFORE SIGNING THIS FORM\*\***