How to Succeed in AP Calculus

Welcome to your first Advanced Placement math class! The first thing you need to know is that this is a college level class. I have designed this course so you can develop the skills and habits necessary to succeed in college. What does that mean? Your grade will reflect what you have learned about calculus, not how much time you spend studying or the number of assignments you complete. If all goes as planned you will leave this class with a strong foundation in calculus, a passing AP score, and the confidence to be successful in your future academic endeavors. This document is meant to give you a glimpse of the course. I have included course expectations as well as tips/tricks/hints from my AP Calculus classes of 2015/2016 and 2016/2017.

Hello, fresh-faced, naïve calculus student,

I'm assuming that you, like me, took calculus because you're a little overachiever. Good for you – embrace it. At first I thought this class was going a little too fast for comfort. If you think that, keep sticking with it. You'll get it soon. <u>But</u> if you don't, ask Chadbourne for help. You really have to work to succeed in here, but it will be worth it. Keep your head up – soon you'll get it. There's nothing better than that 'aha' moment when something all of a sudden clicks. Fight for moments like that. I often complained about calculus over the course of the year, and you can too. But stop and see the beauty in the complexity, and live for the moment that you finally figure out that impossible problem.

I wish you all the best,

K.G.

Homework

Homework is your chance to practice new material on your own. At times you will struggle with the homework problems. When this happens, it is very important that you come see me for help <u>before</u> class.

"Ask questions and get as much help as you need to understand the material, especially early in the year because everything else is based on the basic parts of the curriculum."

"Don't just copy the answers just to say you did the hw, actually understand why the problem is the way that it is, why you messed up, and how you'll remember for future reference. If you decide that you don't have to do hw one night and maybe you'll do it some other time, Chadbourne will move on without you. Do your hw the night you get it, that way you'll be caught up and you can talk to him about certain problems the next day."

Problem Sets

The problem sets are a collection of released AP exam questions. Generally they will be assigned halfway through a unit and due the class before a test. AP style questions are typically focused on conceptual understanding. Problem sets are not just about completion; you need to understand the ins and outs of each question. A friend may be able to provide you with the correct answers, but this will not help you when it comes time to take the test! It you have questions, then it is in your best interest to take the time to come work with me.

"Do your problems sets ASAP and go see Chadbourne with questions – <u>don't</u> just <u>G</u>oogle the answers – you'll be lost on the quiz if you don't learn it now."

Tests/Quizzes
Assessments are structured like the AP exam. They will consist of timed multiple choice and free response questions. Get ready for tests by completing the problem sets on your own and with a time restriction.

> *"Time restrictions seem hard at first, but they get easier as the year goes on and are worth it in the end."*
>
> *"I was ready to drop AP Calc way back in Q1. I failed one of our first tests and my grade left much to be desired. This is by far the hardest math class I've ever taken, and I had to work every day for my grade. First things first, if you're willing to work, you will succeed."*

Weekly Agenda
Topics of study and homework assignments are included in the weekly agenda. Each section is accompanied with the corresponding pages in the textbook. Read! You will benefit greatly from seeing the notation and examples before class. A list of extra practice problems is also included. Extra practice is encouraged but not graded. Try these problems when you are struggling or preparing for a test/quiz. Answers to the odd problems are in the back of the book. You can only get better at math by doing math!

> *"He doesn't check homework a lot but do it anyways because if you don't you will be lost."*

Absences
Students absent from school are expected to follow the weekly agenda. Read the section that was covered in class and do your best to complete the assigned homework. Visit my teacher website or better yet, come see me to get copies of any missed assignments. Do not wait until the next class to get what you missed!

> *"If you miss a class, go see Chadbourne before school or during your study to catch-up."*

Calculators
Each student is required to have a graphing calculator. The TI-83+/84 is recommended. Technology is a major component of instruction, exploration and implementation.

> *"Learn how to use your calculator, it's your best friend."*

Reading
Throughout the year I will ask you to read sections of the book prior to the class notes. My goal is for you to practice the very important skill of reading high-level textbooks. I get it – it's difficult, but that is why I'm asking you to do it. Take note of new theorems, definitions, and notation. Work through the examples and jot down any questions that you may have.

> *"Read the book if he tells you to… there will be a quiz."*

Grades
If you are here solely to boost your grade point average then you are here for the wrong reasons. Do your best to understand the material and a quality grade will soon follow.

Test/Quizzes – 70%
Problem Sets – 20%
Homework/Classwork – 10%

"Don't give up, you'll probably pass…☺"

"Don't stress about the first test grade, you will probably do worse at some point… you will most certainly do better at other points."

Binder
You will need to have a three ring binder for this class. Sections should include: notes, problem sets, assessments, and free response questions.

Mock Exam
As part of this class, you will be taking the AP exam in May. To prepare for this, we will have a mock exam at the end of March or beginning of April. You are expected to be there. Your results on the mock exam will help gauge what you have learned and how we should focus our exam preparation.

"Being up early on a Saturday for a mock exam may seem pointless, but trust me, it helps and it's worth it."

Summer Assignment
We will be using a lot of trigonometry throughout the year. It is very important that you have a strong understanding of the six trigonometric functions. You will need to know the common trig values (see table III), graphs, domain, range and asymptotes of each function. I am not assigning specific problems for you to complete this summer. Your assignment is to know the trig values and graphs. Use this packet as a guide and be prepared for a quiz on our second class in September. Go to my moodle page to find practice problems and helpful videos *(Check late June).*

<u>Graphs of Trig. Functions</u>
Do you feel comfortable sketching the graphs of $y = \sin x$ or $y = \cos x$? What about $y = 2\cos(\pi x)$? Can you describe the transformation and determine the x-intercepts on the interval [0, 4π]?

<u>Trigonometry Facts</u>
You will need to know these as well as you know your multiplication tables. The values of sine, cosine, and tangent in Quadrant 1 should be memorized cold. The other Quadrants' values should not take you more than five seconds to say when quizzed. Making flashcards will be very helpful.

"The first couple of times Chadbourne said to make flashcards I thought it was a joke – it wasn't."… "Study the unit circle!"
"Focus a ton of energy on staying up to date and fully understand the material. You NEED to learn the basics now."

θ	sin(θ)	cos(θ)	tan(θ)	sec(θ)	csc(θ)	cot(θ)
0						
π/6						
π/4						
π/3						
π/2						
2π/3						
3π/4						
5π/6						
π						
7π/6						
5π/4						
4π/3						
3π/2						
5π/3						
7π/4						
11π/6						
2π						

Please contact me if you have any questions (matthew.chadbourne@sau19.org). I look forward to an excellent year! Here is a final note from a member of the AP Calc class of 2017:

Dear You Little Calc Cherub,

At the beginning of the year you might think that you can't do this. When Chadbourne says to make sure you know your trig. functions. Don't take it lightly. That's extremely important, that's where it all starts. Don't be intimidated by the first couple of classes. You'll get a lot of info. thrown at you, but if you take notes, listen to Chadbourne, write down all the examples he demonstrates for you, I promise you'll survive. He gives you everything you'll need. Use the moodle page! He'll post the notes, the hw, the answers to the hw, AP exam problems for practice, and more. If flashcards are your thing, use them! There are lots of terms, properties, and rules that you need to remember. If Chadbourne suggests that you do a certain practice, don't ignore him. Do it! He wants you to succeed and he'll do his best to give you everything you'll need to succeed, you just have to do your part too.

-M.S.