AP CALCULUS AB

Syllabus 2009-2010

COURSE INFORMATION:

Instructors: Mike Garcia and Andrew Spieker
Course Time/Place: 1:30 – 5:00 Every Sunday
E-mail: 2009CalcAB@gmail.com
AP Exam Date: To Be Announced
Course Website: To Be Announced
Course Text: Calculus of a Single Variable (Larson, Hostetler, Edwards) 7th Ed.
(Selected readings from other textbooks will be provided as handouts or on our course website)

PRERQUISITES:

Success in this course is largely dependent on your previous mathematics background. We will spend the first couple of weeks reviewing, and throughout the course we will emphasize subtle points on older topics as relevant, but you are expected to have a handle on the following topics, especially by the end of the first couple of weeks:

+ Coordinate Geometry (Distance, Midpoint, etc…)
+ General Euclidean Geometry (Area and Volume)
+ Algebra and Algebraic Manipulation
+ Elementary Functions (Polynomial, Exponential, Logarithmic, Trigonometric, Rational…)
+ + + This includes word problems and modeling real-life situations

WHAT IS AP CALCULUS AB?:

AP Calculus AB is a course designed by the College Board intended to cover a typical first semester in calculus. The AP Exam is given in early May, and doing well on it may exempt you from having to take a first course in calculus. To take the exam is entirely your choice, but be mindful that if you do not take the exam, you will have no shot at being exempt from their version of calculus. (We will cross that bridge in December or January, most likely; this is not something you should lose sleep over.)

We feel that this course is better than that of a typical first-semester sequence of calculus offered at a typical four-year university. First of all, we have quite a bit of time to cover the material, so we can slow down when things get more difficult, which we will do. Furthermore, neither of us will ever just state a theorem without either giving a proof, decent justification, or an explanation of *how* it should be proved using other mathematics. In other words, there will be no such thing as "because mathematicians said so."

HOW TO GO ABOUT THIS COURSE:

Mastering the material in this course (or any math course) requires *consistent* dedication. The general rule of thumb for an AP class is about 45 minutes a day, each day.

> Here are good ways to spend those 45 minutes: Working on problem sets, homework; reading the text and looking at their worked out examples; reviewing class notes; e-mailing us with questions about problems; studying in a way that **works for you!**
>
> Here are very, very bad ways to spend those 45 minutes: Doing problems that you already know how to do backwards and forwards; spending the entire time staring at a problem that you can't figure out how to do; spending 10% of the time doing work and the other 90% of the time on AIM or Facebook. Okay, we're all guilty, but we can't call that a true 45 minutes of work.

In terms of organization, we don't want to mandate a set of arbitrary rules on how you should keep your material together. Everybody has a different system in terms of keeping things together, study habits, etc. That being said, please consider the following:

+ You should bring your book to class every week.
+ You should have some way of taking notes, whether it's a notebook or a binder with loose-leaf paper in it. Just consider that notes will be the primary source of your material/
+ You should have a way of containing/maintaining the handouts in a way that you have easy access to them at any time.
+ Whoever said that all math should be done in pencil is wrong; you can use pencils if you want, but don't spend needless time erasing things. It's quicker to just cross it out once with a line through it. As long as things are legible and organized, things like homework don't have to be perfect. Crossing out incorrect things allows you to see what your thought process was when you go back and look at the material! That's just as important.
+ Don't buy things that you don't really need for the class, like protractors, highlighters, compasses, white-out tape, sharpie pens. Yes, those items may make you feel more academically secure, but you'll never use them in calculus. Seriously.
+ If you need tips on how to stay organized, we can help! Feel free to ask us for tips.

GRADES AND THEIR ROLE IN THIS COURSE:

Grades are important for us so we know how the class is doing as a whole so we know what concepts to reinforce. Grades are import for *you* because they are a good indication of how well you will probably do on the AP exam.

Homework – 15%
Problem Sets – 30%
Tests/Quizzes – 35%
Take-home Midterm/Final – 20%

No, they're not going on your transcript automatically, but you should still take this seriously if you want to do well on the AP Exam. If you would like this to count as credit for your high school, that is between <u>you and your school to work out</u>, and we will be happy to <u>help</u> in any way we can.

Most homework will be from the book, and it will be made clear when a handout is assigned as homework and when it is not. Homework is not to be confused with problem sets; problem sets will generally be AP style and most of the time more challenging. They will *generally* be due one or two weeks after a unit has been completed, giving you plenty of time to complete them. It will also be clear what is a problem set and what is homework. Tests and quizzes will be a mixture of AP style problems, homework style problems, and general word-problems. This is why when doing homework, you not only need to develop *accuracy* in problem solving, but *speed*. (The AP Exam is timed.)

Opportunities for extra credit and make-ups may be announced when relevant during class, and the opportunities must be taken when offered/handed in on time.

ATTENDANCE POLICY: Please don't miss class. Each class is like a week of school; there will be a problem set due or a test almost every week, starting sooner than you might think. If you miss repeatedly (more than five times,) you will not receive a grade for the course.

LATE WORK POLICY: We would like to emphasize that both of us are taking full course loads this semester (including graduate courses.) Consequently, we don't have time to grade assignments that are late without a legitimate reason. No late work will be accepted for unexcused absences. Late work can be submitted only *one week* after its due date should you have an excused absence. Note that tests cannot be made up in either case, but we can give you a blank copy of the test for you to complete on your own time.

DISABILITIES AND ACCOMMODATIONS:

We'll never call you out on it in class; if you need a special accommodation, we **will** make appropriate adjustments for you, whatever the extent of the disability. For example(s): If you are color blind, we won't use colors on the board that you can't see. If you have a hard time seeing or hearing and there is a certain part of the room that suits you better, just let us know! If you have an IEP and there are other accommodations you need, just talk to us after class and we will work things out together. If you have any food allergies, let us know (we may have some occasional snacks in class, but we will never bring in anything that someone is allergic to). Also, if you are bringing in your own food, that's fine, but out of respect for others, don't bring in anything that has common allergens like nuts. This has to be a comfortable environment for everyone!

IN GENERAL…:

The common theme in all of the previous: keep the lines of communication open with us. This is supposed to be a fun course!!

Here is the first unit's breakdown: it will last two weeks. Each time a new unit starts, you will receive a sheet like this. (We are expecting there to be about 10 units total throughout the year.) It will contain all homework assignments, reminders, etc etc. Changes will be announced in class and it will be your responsibility to be aware of them.

Unit 0: Precalculus Review

September 13, 2009

Syllabus Review and Course Description
Pretest Worksheet on Linear, Polynomial, Rational Functions
More Review and Worksheets on these topics
Calculator Use

Homework: P.1 – 1, 2, 3, 4, 29, 30, 32, 67, 68, 70, 81, 82, 83, 84
P.2 – 35, 38, 42, 44, 51, 52, 53, 77
P.3 – 11, 16, 19, 20, 22, 23, 24, 47, 73, 74, 75, 76

This is a two week assignment, due September 27, 2009. Do what you can this week, and the rest next week!

September 20, 2009

Pretest Worksheet on Trigonometric, Exponential, Logarithmic Functions
More Review and Worksheets on these topics
More on Calculator Use
Introduction to Limits