

AP CALCULUS COURSE DESCRIPTION

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Welcome to **PARADISE!** Your exceptional abilities and accomplishments in mathematics have qualified you for this college level course. Calculus is an Advanced Placement class, so along with the status and extra grade point (not forgetting, of course, the thrill of learning more mathematics) comes the workload and pacing of a college level course. By the end of the year, you will learn enough to pass the AP Exam and move on to the next level of calculus in college. This will be done through a variety of methods with emphasis placed on practice. You will succeed if you are an involved (not passive) member of the class!

I. TEXTBOOK

You will be using the latest edition of Calculus Concepts and Applications by Paul Foerster. Mr. Foerster is actively involved in the authoring and grading of the annual AP Calculus test and his book is closely aligned to the course description of AP Calculus. This is a very expensive textbook. It must be covered immediately and kept covered for the entire year. Our school cannot afford to pay for replacement copies!!!!

II. ATTENDANCE

Regular attendance is critical for success in this class. Students will be limited to five excused absences during the first semester, and three for the second semester through the end of AP testing. Excused absences are defined by school policy as illness, medical/dental appointments, college visits, field trips, and independent study contracts. Grades will be lowered one-third step (e.g. from A- to B+) for exceeding the semester absence limit, plus 1% for each absence over the allotted amount. If students have compelling and unavoidable circumstances for their absences, they must seek clearance from Principal Heller. School policy regarding unexcused absences remains in effect.

III. CLASSROOM

1. The big rule for this class is courtesy. Don't interrupt anyone who is talking. Unrelated conversation and/or off-task behavior does not help you or your grade. Moreover, *these types of behaviors are very distracting to the rest of us*, so avoid engaging in them at all costs. If you don't understand something, ask a question. As long as the questions are legitimate, I will happily take time to answer them.
2. Come prepared to learn. Bring your textbook, paper, pencil and supplies. You will need two additional items for this class:
 - i) a **graphing calculator** - I strongly recommend a Texas Instruments 84.
 - ii) a **composition book** for listing important theorems (with representative diagrams) and formulas.

3. Come prepared to work with classmates! We will be doing a variety of exploration activities in class. These activities will require a group effort. You may not always be in a group with your friends. Be flexible - this is good practice for the workplace where you are expected to cooperate with all of your coworkers (even those who are irritating - trust me).

IV. HOMEWORK AND CLASSWORK

1. Like sports, music, and a multitude of practical skills, practice is essential to mastery in mathematics. It is not unlikely that this class will be a struggle at some level for you at some point during the year. Struggling in math is not a bad thing! It is much like sweating and working through frustrating plateaus of performance when learning a new sport. You can work through the struggle by using the skills you already have and developing new skills that I will help you learn. Some of your practice will be done in class, sometimes it will be done with other students, sometimes it will be done from supplementary materials, and it will almost always involve your graphing calculator to produce, verify or conclude.
2. Assignments will earn you points in two ways. First, each assignment will be graded in terms of effort and completeness. This will be done on a daily basis and will earn you between 4 and 10 points per assignment. Second, random problems from assignments will be graded in terms of the accuracy of method, the correctness of notation and the precision of answers. This will be done on homework quizzes which will be given periodically until approximately the 3rd quarter (when we will fill our time with practice AP tests ☺). ***You must have an average of 70% or higher on your homework and homework quizzes (these are separate and distinct scores) to qualify for "test corrections" on unit exams (see below) and to qualify for the second semester grade change based on your AP score (see below).***
3. Each assignment is due at the start of the next class period. Late assignments are worth a half credit only and must be turned in within one week of the due date. With an excused absence, you will have one extra class period for each day of absence to make up missing work.
4. The amount of material we need to cover in AP Calculus makes it impossible for me to take time out of class to go over every problem assigned. You should plan on using tutorial time before school to get extra help with problems not explained in class.
5. The AP curriculum emphasizes communication skills. As such, writing and problem analysis play a crucial role in student success. Many of the class activities and homework assignments will emphasize this important skill.
6. You will want your homework time to be very efficient in AP Calculus. Here are some tips :
 - ⇒ Those of you who are very careful and neat, thus slow and subject to bouts of homework paralysis, will have to settle for less than perfect here and there in order to get the job done without unnatural stress.
 - ⇒ Those of you who are careless, thus fast, will have to slow down. Method and correct notation are important, **not** picky, parts of the subject.
 - ⇒ All of you will need to learn to read your book as the most important back up to the class. Sometimes we will discuss and read together when the going gets rough.

⇒ Another important resource is your fellow student. Research done at the University of California found that math students who worked regularly with a study group performed at a significantly higher level than those who did not. Study groups are an excellent way to get help and to reinforce what you know. You can waste a lot of time waiting for inspiration, when one suggestion from a study partner can get you going again. Try doing homework with a good "mix" of people.

7. Daily homework is the rule - not the exception - in Calculus. If I forget to mention homework in class, assume it is the next assignment on the sheet.

V. GRADING

1. **Quizzes** are helpful in convincing you to keep up. They will be of the announced and unannounced variety and worth 2-50 points. Quizzes fall into one of the following categories:

- a) Daily "bell" quizzes

These quizzes will be given during the first five minutes of class. Quizzes will consist of 2-4 questions that are worth 1-2 points each and will often be from past AP Exams. Don't be late - you can't make these up!

- b) See "Homework" above for a description of homework quizzes. *You need to maintain an average of 70% on these quizzes to qualify for "test corrections" (see below) and to qualify for a second semester grade change based on your AP score (see below).*

- c) Formula quizzes

You will need to memorize a number of derivative and integral formulas for the AP exam. You will take timed quizzes covering these formulas! Yip!

- d) Note quizzes

Class notes will be worth points in this class. You are expected to take notes whenever I lecture on a topic. Please start each topic on a new piece of paper. This will make it easier for you to find the notes and easier for me to grade them.

2. **Tests/Midterms** are worth 150-300 points and will fall at the end of a unit. Usually, they will cover 2 chapters. Tests will be in the same format as the actual AP test so that you can practice both multiple choice and free-response questions. These will be timed just like the AP Exam so that you get comfortable working under time pressure. I do not curve tests, but I will **SOMETIMES (this will depend on the flip of a coin after the exam has been given)** allow "test corrections" which give you a chance to earn back a portion of the points you lost. *To qualify for "test corrections" you must have an average of 70% or higher on your homework and homework quizzes.*
3. Keeping a **composition book** with important definitions, theorems, diagrams and procedures is a **requirement** of this class. Your book will be an invaluable resource as you prepare for the AP exam and will also be a useful tool for review in subsequent calculus courses in college. You will receive a detailed scoring rubric for this book so you know exactly what it should contain. You will turn this book in on the day of **EACH** unit exam. You are expected to have completed all items up to and including those that correspond to the topics being tested. Please slip the scoring rubric into the book before you turn it in. I will record your ongoing scores on the rubric so you will know where

you stand! If I ask you to redo something, please do so **before** the next time the books are collected. I will also grade this book **before you take the AP Exam** in May.

4. We will take a **final exam** at the end of the first semester. Again, these will be past AP Exam questions so that you get even more practice for the big day in May. The spring final is the actual AP Exam on May 9, 2012 and a score of 5 will earn you an 'A' in the class! A score of 3 or 4 will raise your letter grade one grade! Love that AP test. ***To qualify for these exciting grade adjustments, you must have an average of 70% or higher on your homework and homework quizzes (these are separate and distinct scores).***
5. Please note that we will be covering additional topics after the AP Exam so that you are fully prepared for a typical Calculus II course! In addition, we will be doing a **project** when we cover "solids of known cross-section". This will be worth 50-75 points.
6. Your total point score will also be affected by the quality of your **participation** in the class. Participation is worth 15 points each quarter. Points will be given for activities such as going to the board to explain problems, asking good questions, coming to tutorial and buying me gifts (just kidding). You can also earn points for taking CML or AMC exams, for attending math competitions at SRJC and for attending Calculus Camp at SRJC in April. I'll provide details when we get closer to the actual dates.
7. Your progress reports and quarter grades are based on your percentage of the total number of points possible. Your grade for the first semester is cumulative (i.e. we do not "start over" each quarter) and is determined by your point total (80% of your semester grade) and the final exam (20% of your semester grade). Your second semester grade will be based solely on your total number of points to date. Again, a score of 5 on the AP Exam guarantees you an 'A' in the class A score of 3 or 4 will raise your letter grade one grade. ***(Again, both of these adjustments require that you have an average of 70% or higher on your homework and homework quizzes.)*** Grades will be posted (by ID number) every two weeks so you will always know how you are doing. Grades are assigned as follows:

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|----------|------------|----------|-----------|----------|-----------|
| A | 90% - 100% | C | 67% - 79% | F | below 58% |
| B | 80% - 89% | D | 58% - 66% | | |

VI. THE AP EXAM

The test will be given on Wednesday, May 9, 2012. I will pace the curriculum according to the AP syllabus so that we finish with at least two weeks available to take practice tests. I fully expect every student to satisfactorily complete the course and take the AP Exam. ***PLEASE NOTE THAT IF YOU FAIL TO TAKE THE AP EXAM, THEN YOU WILL NOT EARN THE EXTRA GRADE POINT FOR THE COURSE AND YOU WILL BE REQUIRED TO TAKE A CUMULATIVE FINAL EXAM IN JUNE.*** You will be notified of the cost of the AP test when the College Board provides us with the new fee structure (usually in February).

Course and credit options for students who pass the AP Exam will vary for each college. A "by campus" description for the UC campuses can be found at www.ucop.edu. Students who score a 3 or better will be exempt from the Entry-Level Mathematics exam given by the California State Universities.

This will be a rigorous course, but you will succeed if you work hard and actively participate in class. You are an exceptional group of people and I know you are destined to do great things. I look forward to working with you this year.

