

To Succeed in Calculus

KEEP UP WITH THE ASSIGNMENTS! Over the years, I have found that the best indicator of a student's success is whether they keep up with their assignments. Students who keep up, do well - students who don't, don't.

REMEMBER THAT THE GOAL OF AN ASSIGNMENT IS TO UNDERSTAND THE MATERIAL - NOT JUST GET THE PROBLEMS DONE! You understand the material when you can do the problems - and get them right - BY YOURSELF. There is absolutely nothing wrong with asking questions or seeking help from your fellow students or me. Everyone will need help sooner or later in this course. However, you must have the integrity to realize that the goal of the assignment is NOT just to get the assigned problems done! When I select problems for an assignment, I try to pick enough representative problems to provide adequate practice. There will be times when you will need more practice than this, and you must have the courage and integrity to realize it.

TREAT ASSIGNMENTS AS "PRACTICE TESTS". Fifty percent of your score on most tests and quizzes will be determined from your solutions to free-response questions. For these problems, the correct answer counts for as little as twenty-five percent of the total score. The rest of the points are awarded on the quality of your solution to the problem. This means that if you have correct answers for all problems - with no (or disorganized, or incomplete, or unreadable) supporting work - you will NOT score well. If you have a few incorrect answers, but well-organized, complete solutions that use proper mathematical vocabulary and symbolism - you will generally do well. Use your assignments as an opportunity to practice presenting well-organized mathematical solutions to problems.

NEVER ERASE. If you hit a "dead end" and want to start over, cross out the work you don't want with a big "X" - do NOT erase it. It might turn out later to be correct! Erasing can be a big time-waster on tests (where time is very valuable). Material that is "X"d out will not be graded on tests.

READ THE BOOK. This is important in every class, but in this class the text serves as a valuable supplement to what happens in class. It is not just a place to find the homework problems. Read the book slowly, line-by-line, with a pencil and paper nearby. Pay particular attention to the illustrations and examples. Study the examples carefully. Work through them with the authors. Be sure that you know how the authors get from one step to the next.

LEARN THE VOCABULARY AND SYMBOLS. It is vitally important that we can communicate in the language of mathematics. As you read or participate in class, pay particular attention to the meaning of each new term and symbol.

UNDERSTAND THE USAGE OF EACH NEW FORMULA. It is crucial to your success at just about everything that we will do this year! Having a calculator does not mean that you don't need to know any mathematics.

REVIEW CONSTANTLY. Lucky for you, every test and quiz is cumulative, and we will review extensively in class; therefore review is somewhat automatic. Don't hesitate to go back to review or seek help on algebra, geometry, and trigonometry skills that you may not have mastered sufficiently in earlier courses. The majority of the errors that students make on tests and quizzes are not calculus mistakes - they are algebra, geometry, and trigonometry mistakes.

TAKE GOOD NOTES DURING EACH CLASS. Good notes are essential for success in any technical field. They are essential for review - not only for tests, but also for the problems you will work that evening.

EVERY MINUTE OF CLASS TIME IS VALUABLE! Use the time at the beginning of class to get ready for calculus - get out your books, assignments, notebooks, pencils, etc.

ORGANIZE. Your success depends on your ability to recall (or find, relearn, and then remember) concepts and techniques that were introduced earlier. If your notes and assignments are scattered about, folded inside the covers of your book, papering the bottom of your locker or the floor of your car, you're sunk.

BECOME AS SELF-SUFFICIENT AS POSSIBLE. There are many students, and just one teacher, and time is too valuable for you to just wait - stuck in neutral - for help. Look in your text and your notes for sample problems that might shed some light on your difficulty. Learn tenacity - don't just "fold" at the first sign of difficulty! Is there another way to approach the problem? You can do it!

BECOME PROFICIENT AT USING A GRAPHING CALCULATOR. Your calculator is a valuable tool for visualizing and solving problems of all sorts. On parts of the tests and quizzes during the year, you will be required to demonstrate your mastery of the graphing calculator as a mathematical tool. Learn to use it well. Become familiar with ALL of the ways that your calculator can be used to solve a problem.

BECOME PROFICIENT AT NOT USING YOUR GRAPHING CALCULATOR. Be aware that quizzes and tests will contain "No Calculator" problems. In all cases, you will be required to demonstrate your understanding of calculus. You will be required to provide symbolic (often exact) solutions for many problems, and you must be able to explain your solutions using correct mathematical symbolism and vocabulary.