

Suggestions and Tips for Success in Calculus A

*BY FAILING TO PREPARE,
YOU ARE PREPARING TO FAIL.*
~ BENJAMIN FRANKLIN

Learning mathematics takes consistent practice. Much of the opportunities for practice are furnished by the homework problems that you need to turn in regularly. In addition to homework problems, you should also honestly “test” yourself with extra problems in the textbook, and exam reviews. Your performance in these “self-tests” could give you a good gauge of your understanding of the material taught in class.

Aim to achieve ownership of mathematical knowledge.

By that we mean you could:

- (1) Identify the tools needed to solve a given problem.
- (2) Carry out the process of solution in a reasonable time frame without help from a tutor or peer.
- (3) Give a reason for each step in the solution of the problem.
- (4) Obtain insights from your computation besides giving a number.

Although we recognize that some individuals are more gifted in mathematics, **consistency in your learning is still required to improve your chance of success.** Mathematics is a hard subject; for many, much has to be done just to get by. However, the skills you gain and the opportunities opened to you from your training in the subject will make the challenges you face worthwhile. These skills are required in your future employment. For instance, see:

http://www.businessweek.com/magazine/content/06_04/b3968006.htm

http://news.bbc.co.uk/2/hi/uk_news/education/6954666.stm

Meet with your instructors (professor and TA) whenever you feel that you are falling behind or have trouble understanding the material to the level listed above. In addition to your instructors, you could also get help from Math department tutoring, and the LRC. For details look up:

<http://www.nd.edu/~b1hu/math10350-07F/index.html>

<http://www.nd.edu/~b1hu/math10350-07F/lrc.htm>

Ultimately, students need to be able to solve the problems by themselves. But you will be helped by the guided experience provided by the course. Use the resources available to you to support your learning. These resources include your instructor, tutoring services, and practice problems.

Many students in the past have been successful in Calculus.

With that said, we wish to give advice on how you should manage your time, and tips for handling various learning activities of the course, including the examinations.

Getting the Most of Classroom Instruction

Be in class and be prepared to listen attentively and take notes.

Work out all examples discussed in class. You should be able to work these out on your own in a reasonable time frame. Most problems should take no more than 20 minutes if you have grasped the material. You should be able to reason out and explain each step of your work.

Identify the material that you do not understand, and examples that you have a hard time working out or take a long time to complete.

Ask for help immediately. We highly encourage that you speak with your instructors about this material before the next class or at least on the same day as the next class. The point is to **promptly resolve any confusion as soon as possible**. You may still need to “test” yourself with a few similar problems after meeting with your instructor.

Completing Your Homework

Start working on your homework by the end of each lesson since homework is collected every class day. At least have an idea of how much time and help you need to complete your homework.

Getting started early gives a good margin of time to complete on your homework.

Mark out those you have confidence doing and those you do not know how to start. Work on at least a couple of them to know how much help you need. You are expected to complete about 8 to 10 problems every day.

Attempt those problems that you are confident in completing first. Work on those that you are unsure of. Give yourself a full 20 minutes to seriously attempt these problems.

Ask for help promptly if you still cannot do your homework. Bring along your scratch work.

File your homework immediately when it is returned. You will need it for reviewing.

Preparing for Exams

Give yourself a week to prepare for each midterm (or final) exam. Get all the material you need to go through: (1) Sample exams, (2) Class Notes, (3) Homework, and (4) Quiz.

There is obviously a lot of material to be covered. However, **learning the course material should be a consistently on-going process** and should NOT take place merely the week before the exam.

Start with the sample exam. Mark out all the problems that you are confident of solving, those for which you need to refresh your memory, and those you totally do not know how to attack.

Attempt as many problems as possible before review sessions.

Ask for help promptly from tutors and instructors. Bring along your attempts and scratch work; they help us see how to best facilitate your learning.

Attend review sessions. Please note that going to reviews session alone does not mean that you are ready for the test.

Test yourself with an exam from a previous year. You need to be able to solve a problem by reasoning out each step of the solution.

Look for more practice problems in topics that you are still uncomfortable with. It is a good idea to work out those problems in the notes and text for these topics. See your instructor.