Success in Calculus
Academic Success Center
Iowa State University

Students committed to learning will find many possible paths to success. No path is error free, but the path best for you may not look like the same path as another student. For this reason, students should continuously assess their academic progress in courses and adjust their academic strategies accordingly.

While there is no magic formula, the following suggestions may improve your ability to succeed in calculus and increase your retention of knowledge.

Divide your reading into smaller sections. Read one section, then read it again. And again. Reading calculus is like no other reading you will do—calculus textbooks are all details and no fluff. You can help yourself by reading aloud to ensure you do not skip critical details.

Use extra study opportunities to learn with peers. Problem solving in groups is a key consequence of long-term retention of knowledge. Be actively involved in class, Supplemental Instruction, the math help room, recitation, or other study group opportunities.

As soon as you struggle, determine why. Calculus concepts are progressively cumulative; hence, you must resolve your struggles with one concept before your struggles compound. Besides using group study opportunities to develop your ability level, also connect with your instructor or TA.

Do all homework. Calculus homework replicates what may appear on exams/quizzes. Hence, all homework is test preparation.

Embrace repetition in problem solving. If your instructor expects you to solve 10 problems, consider this your minimum. You should work out every problem twice and do extra problems. This extra effort is the difference between testing your luck and being a good student.

Attend class. This is like stating the obvious, but there is a lot of content in calculus classes that may be presented to you for the first (and possibly only) time. If you skip, you will never know what you missed.

Read ahead of lectures. If you are frantically taking copious notes during class (or are lost) you likely are not reading enough before class. You can control your reading pace but you cannot control your instructor’s lecturing. Hence, make your “first contact” with new course material be under your control by reading before class. You will find that reading ahead allows you to focus on new details in class that you might otherwise have missed.

Listen in class during presentation of examples. Many students want to write down all examples for later reference, but are so focused on writing that they fail to hear the instructors’ explanations and solution process. Your textbook has examples that you can reference later, so listen carefully during lectures and only take notes of the essential, new information.
The correct solution process is the right answer. You can get the right final answer as a fluke, without having any idea how you did. Focus on understanding the solution process as the right answer.

Be logical and critical. Problem solving is a process of logical steps, but to be a good problem solver requires critical thinking ability.

Study daily. One hour per day every day is better for your learning than two large study sessions per week. The minimum amount of time students should devote to math is not the same for everyone. Determine your minimum amount per day and seek to exceed this goal.