HOW TO SUCCEED IN MATH CLASSES

NOTE: These suggestions were primarily prepared for students taking pre-calculus math courses. However, other students may also find some of the suggestions helpful.

1) Be a model student:

   a) Arrive a few minutes early – and stay until dismissed by your instructor.
   b) Sit near the front of class.
   c) Be attentive and take legible notes.
   d) Attend every class and don't talk during the lecture (doing so prevents you from getting all the information you need and is also inconsiderate to other students who are listening to the lecture).
   e) Review lecture notes and begin working on homework immediately after attending the class (this requires that you have at *least* 1 hour free between the math class and your next class. If this is not practical, review and do your math homework as soon as possible once you have free time).
   f) Plan to spend 2-3 hours per day, 5-6 days per week, working on math outside of class— MINIMUM!

2) Fine tune your study skills and strategies:

   a) Adjusting your expectations:

      → Expect to work much harder and longer than you did in high school!
      → Expect the pace of your math classes to be much faster than in high school. This puts a much bigger responsibility on you to learn the material from out-of-class study instead of relying solely on your instructor.
      → Expect to visit your instructor's office on a regular basis. You are not expected to understand everything the first time you see it. That's what office hours and appointments are for!
      → Expect to study each topic as if you've never seen it before, even though some of the material may be review for you. This will deepen your understanding and help you develop good study habits that make the rest of the course (and successive math courses) easier.
      → Expect to store the mathematics you learn in long-term memory (Regardless of what the instructor may tell you, ALL math tests are comprehensive!)
      → Expect to learn precisely the statements of formulas, definitions and theorems. Also, make every effort to understand, not just memorize them.

   b) Reading your math book:

      → Read the assigned section before and after your instructor covers it in class. The syllabus will tell you what section will be covered next. Attempting at least a few of the homework problems before they are covered in class is also a good idea.
      → Keep in mind that a math book cannot be skimmed. You must have a pencil and some paper so that you can work out the examples for yourself as your read.
      → You should expect to re-read each section several times before understanding it!

→ Don't skip over sections—if you do you will probably miss something crucial to your understanding.
→ Make notes in the margins (or on sticky-notes, if you are going to sell your textbook back at the end of term) and ask your instructor for clarification if necessary.

c) Doing homework:

→ Practice!!! Repetition is the key to learning math – the more problems you do the sooner you will see the patterns and similarities between the problems.
→ Divide the problems by type, make a list of problem types than make a list of steps to follow for each type.
→ Put a problem of each type on a 3X5 card – you should have several cards from each section of the text. Put the problem on one side and the solution on the other. Shuffle the cards and see if you can do them without the "context clues" from the textbook.
→ Learn alternate ways to work the problems so that you can check your homework and deepen your understanding.
→ Find and use methods for directly checking your work. "Directly checking" does not mean re-solving the problem as in the previous suggestion. For example, if you have solved an equation for x, replace the letter x in the original equation by the numerical value you found and see if the resulting equation is true. The habit of checking is a key behavior shared by almost all successful mathematics students.
→ Stay current and practice every day. Whatever you do, don't get behind!
→ Study in tolerable amounts – 20 minutes to 2 hours at a time – depending on the level of the course and your own frustration threshold. If you are making progress, keep going. If you are getting nowhere, take a break and come back. Remember, there's a difference between giving up and backing off.
→ When it starts to get difficult, find help, and do so quickly! Your instructor and study group should be at the top of your list of resources. And don't forget supplemental instruction, tutoring, and the Math Learning Center in 031 Dunbar Library!

d) Participating in a study group:

→ On the first day of class (or at least during the first week of class) try to find a few students in class who would like to form a study group.
→ It's helpful if the other students either live close to you or have a similar class schedule.
→ Try to work the problems alone at first, then work with your study group to check your answers and ask questions about the ones you had trouble with.
→ Studies show that you will remember 90% of what you say as you do something. So, if you explain a problem to a friend while writing it, you will not only help your friend, you will also help yourself remember what you've learned!

e) Asking questions:

→ Go to your instructor's office hours with questions about the reading or homework assignments. If the office hours conflict with your class schedule, ask for an appointment!

→ Go to class prespared to ask questions about homework problems that you were unable to solve, but don't be surprised if you are asked to see the instructor after class, as they must keep the class on schedule.
→ During lecture, ask questions as soon as you become confused, don't wait until you are completely lost!
→ Try to ask specific questions whenever possible instead of just saying "I don't understand". This will help the instructor respond appropriately!
→ Ask your instructor about other resources that might be available to help you prepare for class or exams.

f) Preparing for exams:

→ If you have adjusted your attitude, read your math book, done your homework, participated in a study group, and asked questions, then most of your exam preparation is already done!
→ Many instructors provide a review sheet. If you do have a review sheet, make sure to work through all the problems at least 2 or 3 times. If you do not have a review sheet, go back through the homework and re-work some of the problems, especially the ones that you had trouble with the first time through.
→ Predict possible test questions with your study group and self-test. A possible way of doing this is to have each member of the group make up a few problems—that he or she has written out the solutions for—and to give them to the other people in the group to solve.

3) Overcome (or at least cope with) test anxiety:

a) Be prepared:

→ Read all assignments, taking notes as you read.
→ Review reading notes.
→ Take and review lecture notes. Remember that re-writing your lecture notes immediately after class will help you fill in some of the things you missed during the lecture as well as help "jell" the information in your mind.
→ Do all assigned homework problems – as soon as they are assigned!
→ Predict possible test questions with your study group and self-test.
→ Study with friends.

b) Learn and practice some relaxation techniques:

→ Progressive muscle relaxation, cretive visualizations, and some simple deep breathing techniques are good ones to learn at first. If you don't know what these are, ask your advisor!

c) On the day of the test:

→ Eat! Taking a test on an empty stomach is a bad idea. Your brain needs energy to function at its best.
→ If something upsets you right before the test, do your best to calm down. Don't let it start a domino-effect of negative thinking.

- → If you are allowed to use a calculator, make sure it has fresh batteries and is working properly.
- → Have some extra sharpened pencils and erasers (and scratch paper, if it is allowed) with you.
- → While the instructor is handing out the test, take a deep breath, smile, and tell yourself that you will succeed.
- → When you get the test, LOOK IT OVER FIRST! Quickly identify which problems you are certain you know how to do, then do them first. Do the ones you aren't sure about after you guarantee yourself as many points as possible.
- → If you get stuck, go to another problem and come back to the troublesome one later.
- → If you don't understand what you are being asked in a question, ask the instructor or test proctor to clarify the question. This is not the same as asking them how to solve it!
- → Make sure you put your name on the test before you turn it in.
- → After the test is over, forget about it. Go do something relaxing and fun. You can analyze and evaluate the exam with your study group once you get it back after grading.

This guide was written by Cynthia Fleck, Retention Coordinator, with additions by Dora Douglas and Christine Krebs.