

# STRATEGIES FOR LEARNING IN PROBLEM SOLVING COURSES

## PREVIEW PRIOR TO CLASS

- Before class, look over the topic(s) and sample problems in your textbook that the teacher will be covering. Pay special attention to new vocabulary terms and symbols. This will help you get a head start on learning and taking notes from the lecture.

## TAKE NOTES

- During class, avoid rewriting what is already written in the book or on the slides. Instead take notes of any explanation or important points your professor is making in class.

## AFTER CLASS, GO OVER YOUR NOTES AND REDO PROBLEMS

- Within a day or so after your class, take time to read over your notes and the related sections of your textbook to understand the procedures/problems that the teacher covered in class. Then, without looking at the solutions in your notes or text, try to do the problems that the teacher modeled in class and the examples in the text. If you have difficulty doing a problem, study the solution and try to understand how to do it. Then, write down any strategies or tricks you learned by solving that problem, or jot down questions about what you don't understand so you can ask a classmate or the teacher at the next class.

## DO PROBLEMS AT THE END OF EACH CHAPTER AND SUMMARIZE PROCEDURES

- Do as many problems as possible at the end of each chapter, whether they are assigned as homework or not. Learning to solve problems requires practice! As you complete a problem, summarize in words the procedure for solving that type of problem. A good idea is to write an example of each different type of problem on an index card with the procedure steps and solution on the back. You can then use these cards for review and to test yourself before an exam. Put a special mark on any problem that you had particular difficulty with.

## REVIEW REGULARLY

- Be sure to cycle back to previously covered material to keep terms, symbols and procedures fresh in your mind. If your text has chapter review problems, do them as well. Practice doing problems randomly (not just from one section or chapter of the text). This is easy to do by shuffling your index cards.

## PREPARE FOR AN EXAM BY TESTING YOURSELF

- To get ready for a test or exam, practice doing the exam activity. That means you should try to do as many different types of problems as possible, without looking at your notes except when you need to review/relearn a procedure. Be sure to test yourself by doing problems in random order and by doing problems you had difficulty with in the past. Redo any class tests before a final exam and if you can get old exams, try doing them under real exam conditions: no textbook or notes + time limit. When you discover problems you can't handle, review your notes and then try these problems again.

## CORRECT AND LEARN AFTER A TEST OR EXAM

- Once you leave the exam room, check your answers with the book, your notes, or your classmates.
- When you get your test or exam back, take time to go over the problems where you didn't get full marks. Figure out what you did wrong and learn from your mistakes. Concepts and skills on tests often reappear on a final exam.

## FORM STUDY GROUPS

- Working with other students in your class is a valuable use of time. It allows you to discuss concepts and procedures, to get help with difficulties you are having, and to explain procedures in words as you help others. You can also share ideas on what are the most important concepts in the course, make up practice tests for each other, and stimulate and encourage each other to succeed in the course.

## USE ALL RESOURCES

- Successful students know and use many resources. If you are having difficulty in your course, take steps to get up to speed. Get another (better!) text book from the library on the same material as your course. Buy a self-teaching book on course concepts at the book store (e.g. College Outline Series). Make an appointment to speak to your teacher to see if he/she can help. Book an appointment with a tutor in the Math and Learning Lab, drop by the Math Help Centre or get a private tutor. See if you can audit the same course given by another teacher. Go to additional tutorials with your TA. Remember, it's your responsibility to make sure you are successful in your courses.