General Study Strategies for Problem-solving Courses

The core of all successful study strategies is effective class preparation. You should not be waiting until just before the midterm or final to look at your notes and problems for the first time.

Here is a good general strategy to follow (which can apply to all your courses):

1. **Start building your foundation early!** Students have told us that they find it incredibly helpful to do some general review of topics (especially if you haven’t been exposed to them before) prior to doing textbook readings and going to class. There are some great resources (web, old textbooks, library, etc.) out there that can help to give you a general foundation in topics/concepts/themes that you will be covering in class without all the detail that may initially confuse or complicate things.

2. **Before going to class, do the assigned reading!** There is a way to read and understand what you will be covering in lecture which does NOT require intensive time or ‘studying’. Talk to an ASIP instructor for more details.

3. **While in lecture you should be thinking and processing not just recording or taking copious notes!** There are different note-taking styles for different types of classes and an ASIP instructor can help you figure out which style can help you get the most out of class.

4. **After class, you need to process your notes!** Try and put conceptual information in your own words or maybe try and explain what you did in class out loud or to a friend or tutor. You never know how well you get or know something unless you try to teach it! Most students tend to go straight for the homework problems and spend little processing class notes or reading textbook explanations of key concepts.

5. **Attempt all homework problems.** After you’ve attempted your homework problems choose one or two representative problems for each key concept introduced in class (or textbook) and try to analyze and manipulate them.

6. **If you get stuck don’t dwell on it.** You can come back to a difficult problem later in your homework session or the next day. If you still can’t figure it out on your own, mark where in the problem-solving process you are stuck and seek help! Take it to your TA, prof., tutor, help room, or friend and try to analyze their thought process and write down verbally how they solved the problem so that you can try it out yourself. It is key to try and get your questions answered quickly.
7. **Complex problems need time!** Just because you figured out how to solve a particularly complex problem on your own (or with help) once, doesn’t mean you’ll automatically understand how to do it come exam time. Most students find that this only works if you reinforce that knowledge in the beginning! If you spend a little time over a few days reviewing the concepts addressed by the problem, PLUS reworking your thought process and solving the problem from scratch a few times, it won’t feel like you’ve never seen the problem come exam time!

8. **Set up a regular and realistic study routine!** You already know that saving all your homework problems until Sunday night will probably not give you enough time to work through everything. Taking all the “unfinished” problems to your tutor or the help room the next day to get the answers will give you a completed assignment, but will not give you the kind of understanding of the material that you need to build on for an exam.

9. **One time each week, pull random problems from your textbook or other source.** You can use notecards and write problems on one side of the card. Shuffle and choose a card and work out the chosen problem on the back of the card. If the problem is difficult for you, review relevant concepts and try again. It helps to write out what you can do in one color ink and then finish or fill in where you looked up solutions or got help in another color so you know what you had trouble with when you study! Remember exam problems are randomly organized so it helps to mimic this when you study.

**One last tidbit:** the average recommended hours of study per week, per course are 6 – 8 hours and the frequency of study sessions per week for problem solving courses are 3 – 4 two-hour study sessions spaced throughout the week.