

*In general:*

The single most valuable piece of class-taking advice I've ever gotten and been able to personally follow is: after a lecture, some time that same day read over your notes from that lecture.

The single most valuable piece of class-taking advice I've ever gotten and not been personally capable of following is: start homework early.

A version of the above that is easier to implement is: the day you get the homework, read all the problems over carefully enough that you can remember what is being asked. This technique allows you to let the problems rattle around in your brain all week (or whatever), which is a significant advantage over reading the problems for the first time the night before. It also allows you to write up solutions to the easy problems first, thus allowing more time for the hard problems at the pre-deadline crunch time.

Reading over your homework answers after you've written them up is a very simple way to catch mistakes you might have made. Experience suggests that many students do not attempt this, and it is hard to do when things have been left to the last minute.

It's useful to compare and collate the notes you took in lecture against those other people took. People hear and write down surprisingly different things.

It is impossible to skim technical material effectively. This is especially true in mathematically-oriented fields: there, every word matters, especially in definitions, and changes in even a single word can have major effects.

Cornell's Learning Strategies Center (<http://www.clt.cornell.edu/campus/learn/learn.html>) has an amazingly useful set of resources, and is worth an online visit just to get their semester calendar. Did you know there is a Cornell note-taking system?

*With respect to this course:*

I design homeworks so that, with any exceptions clearly marked, the entire homework is in principle do-able the day it is handed out; that is, all the material tested in the homework will already have been covered when you get it, so you truly get a whole week to work on it. This implies that if, when you're confused about something in lecture, you get it straightened out as soon as possible (perhaps in office hours), you in a sense get as much as *two* weeks to work on the assignment.

The office-hour schedule is designed so that there are some hours at some distance from problem-set due dates. It is therefore likely that one would get more personal attention at such times.

I usually, but not always, organize assignments so that easier problems come first. Depending on your tastes, you might prefer to work on them in that order, or in reverse order.

My favorite way to make up homework problems is to take some topic we covered in lecture, and say, "what would happen if we changed ...?". Thus, you will often get questions that ask you to examine the effect of changing definitions, altering assumptions, adding constraints, and so on. Pros: answering such questions means one really understood the original concepts in a deep way. Cons: such questions assume you understood the original concepts well and go on from there, and so are often viewed as pretty hard.

It follows that one good "defensive" strategy is to try to do the same thing: take a topic we've covered, and try to formulate and answer questions about what happens when important factors

are altered. (This is an excellent way to use the course staff's office hours.) Indeed, this is exactly how research occurs, if you're into that sort of thing.