How to Succeed in Class by Really Trying

You’ll see a lot of detailed information – definitions, proofs, examples, applications – that support the big ideas of this course. To get the most out of it, here are some suggestions for approaching the course material.

Learn together

Computer scientists have an undeserved reputation for being loners. In fact, computer science is a highly collaborative field, and computer scientists love to explore new ideas together. Remember that you’re not alone in this course.

It’s a good idea to study together, since explaining concepts to peers and hearing their explanations can help to clarify your understanding. You’re also allowed to do assignments in pairs, and I recommend you try it, but focus on learning the material, not on completing the assignment as quickly as possible.

I recommend that you attempt all of the problems on your own before coming together as a pair. Do not divide up the problems. The assignments provide practice at different skills; some problems are focused on terms and definitions, some are explorations of pure theory, and others explore applications. If you take the time to work through them and really think about the material, you’ll come away with a nuanced understanding of the concepts from the course and how to apply them. On the other hand, if you split the work up, your understanding will be incomplete.

Know when to struggle and when to stop

It’s important to make a serious effort to understand the material and to work through the assigned problems. Always asking for help is an effective way to “complete” your assignments, but it’s a terrible way to learn from them, and it sets you up for failure on the exams.

On the other hand, there’s no prize for spending hours and hours hitting your head against a problem. If you’ve made a sincere effort to answer an exercise, reviewed the lectures and textbook, and you’re still not sure how to proceed, ask for help!

It’s up to you to learn to calibrate the right amount of perseverance – when to keep struggling and when to get help.

Take notes in lecture

While the slides from each lecture are posted to the course website for your reference, it still helps to take notes. Rather than write down
what's on the slides or try to write down everything I say, put the con-
cepts into your own words. You may find it especially helpful to draw
diagrams showing how different ideas relate.

Also, pay attention to the questions other students ask and the
answers to them. These won’t be in the slides, but they may be the
same questions you’re wondering.

Start assignments early

If you leave assignments until the night before, you’ll struggle just to
finish before the deadline, which means you’ll be working harder and
learning less!

Start the assignments several days before they are due. The prob-
lems really benefit from going away and coming back later when you
are stuck. And if you start early, you’ll have time to get help if you
realize there’s something you don’t understand.

Stay on top of the material

The concepts in this course build on each other. If there’s something
you don’t understand, you need to make an effort to clarify it when it
comes up.

I recommend you read the required material after the class where
it is introduced. This way, you are reinforcing what you already un-
derstand with another explanation.

Focus on the main concepts and not just the details. For example,
don’t just memorize the steps to convert a DFA to an NFA, but under-
stand how the conversion works in principle. The steps then become
easy to remember.

It’s tempting to focus all your time on the current assignment, but
previous misunderstandings will come back to haunt you! This is the
primary reason you’re being asked to correct your assignments after
you submit them – so you need to think about what you did right and
what could be improved.

Acknowledgements

This is based on a guide by Keith Schwarz.