The Complete Manual to Surviving CIS 1600

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> What are the basic mathematical concepts and techniques needed in computer science? This course provides an introduction to proof principles and logics, functions and relations, induction principles, combinatorics and graph theory, as well as a rigorous grounding in writing and reading mathematical proofs.
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> — *Description of CIS 1600 in course catalog*

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§1 Introduction

This course has a reputation for being one of the hardest at UPenn relative to its level. But it helps to have the preconceptions of why it is so dreaded so that you can tackle the course with the right mindset:

- The thought process behind solving problems in this course is not something that can be easily described with black and white principles.
- The TAs are extremely nitpicky about grading on the homeworks and tests. They expect complete rigor in solutions.
- Concepts are not always explained in plain English. The course is not exactly friendly to those who don't have a background in math.
- If you fail to include certain buzzwords they're looking for in the homework, they won't hesitate to take points off. They don't always tell you what buzzwords they're looking for, too.
- The sheer amount of material thrown at you is insane and the pace of the course is unforgivingly fast. If you fall behind, you need to catch up immediately.
- The midterms and final are closed notes and are fast paced. See more on "Test Strategies."

What this guide is supposed to do:

- Help you understand concepts in Layman's terms
- Show examples of the concepts in action with the important parts highlighted
- Point out when and where a concept is applicable to build a thought process on tackling HW and test problems
- Make you feel more comfortable about what you're learning to give you momentum in the course

However, I do NOT want you thinking:

- You can rely on this guide solely for the material and then skip class
- I will do your homework for you just because I typed all this out

That being said, I would greatly appreciate constructive criticism on people who use this guide. If a section is poorly explained, I have no issue in improving it.