HERE ARE SOME HELPFUL TIPS THAT I WISH I FOLLOWED MYSELF :[

FIRST, AND FORMOST—Make sure you do the homework! Keeping up with lecture material is super important; you never know when the pop quiz will happen, so you are going to have to be caught up with the schedule or you WILL regret it when the weekly quiz pops up. It is never fun to procrastinate till Thursday and then cram. Why? Because doing the homework problems take a bit of time, and even if you did manage to finish every single problem that Thursday night (or Friday morning), you would not have practiced the problem enough. Plus, the homework questions (or SIMILAR questions) have a knack to show up on the quizzes (pop or not) AND midterms. That, dear sirs, is your incentive to keep up.

SECOND—When it comes to reviewing for a quiz, make sure to go over your HW AND notes (lecture and textbook). When it comes to cramming, reviewing the lecture notes does seem like the best way to study, after all, the lecture notes are the best notes! But, there are so few examples to study with! The textbook examples do provide similar problems, but even that is not enough. The practice comes from the homework questions, both the optional and recommended. Use the lecture and textbook notes to familiarize yourself with definitions and theorems. You will need this especially if you need to do a quick review on the problem solving. Use homework to practice solving problems. Doing things over and over (homework) may seem tedious, but the payoff is great because once the test rolls around, you already know how to solve the damn problem.

THIRD—Midterms and finals can be such a pain. Making study guides is also a pain. So, spare yourself some pain and, while doing your hw, circle problems you think summarizes the section the best (and also problems in the hw that you had trouble on) and you have an instant study guide. That way, to help study for the test, you can just re-solve (or attempt to re-solve) those problems. When midterms or finals come rolling around, you will feel more or less pain-free, depending on how much you remembered. Things you forgot/could not solve, you should review. Use previous exams and quizzes also as "testing material"; this should be easy enough, since the professor posts test solutions online. Those online solutions are great, since it tells you how you should solve something if you got it wrong.

Remember to check answers for questions without textbook solutions with other people!
MISTAKE: I never checked whether my answers were correct for the optional hw. I would refer to the back of the textbook to see whether the method and answers were correct for the questions that had solutions. When I solved the optional questions, I never checked in with the professor because I believed my answers were correct anyway. I should have asked to check to see if I got the problems right or not. That meant that the mistakes I did in homework were the same mistakes on the midterms. So many points were lost…

If you have a problem, GO TO OFFICE HOURS.
MISTAKE: I never went to office hours or asked other students for help. When I began to fall behind on the material, I felt that if I asked questions pertaining to past material, I would be judged. I admit I was intimidated to ask questions because I was so behind and felt that everyone would think that I was dumb. Maybe I am dumb. No wait. I am dumb because I didn't go ask for help. Office hours are FOR STUDENTS WHO NEED HELP. If I was stuck on one thing, I was stuck on it forever. If I had gone to office hours, I would have saved so much time on help I really needed. So if a problem gets too troublesome, I advise you to note the problem number and move on. Don't spend hours trying to solve it yourself; this was how I fell behind in the first place. Ask the professor for help.

Math 22 Personal Development Exercise

Three Recommendations

1. Think of this class as a (potentially) 10 unit course.
    a. While this class is technically 5 units, compared to other courses at De Anza (and depending on your innate Discrete Math prowess), this course could take up to 10 units worth of time. The earlier you realize this, the better off you'll be. If you have a particularly heavy course load this quarter, or other time-intensive commitments, now is probably not the time to take this class. The beginning of the course is deceptively easy, and then it gets *much* harder from then on. Be prepared to make room in your schedule for when this happens.
2. Study a lot for the first midterm, even if you don't think you need to.
    a. Like point 1 says, the beginning of the course is a lot easier than the rest of the course. Consequently, the first midterm is a lot easier than the others. (Midterms 2 and 3 are very difficult, in that, you will feel like you barely had enough time to finish ... if you did finish.) If your Midterm 2 or 3 score is lower than Midterm 1 (and they almost surely will be), then 2 or 3 gets replaced with the average of 2 or 3 and Midterm 1. This will be a life-saver later on if you did well on Midterm 1.
3. Take the homework seriously and do your homework as if it's going to be graded.
    a. The questions on the midterm are going to be very similar to the homework questions. Thus, an easy way to bolster your midterm grade is to do all the homework. Additionally, write your homework in the same way you would as if it's going to be graded. Any bad habits you're doing on the homework will translate into lower scores on the exam. This isn't the type of math class where only the answer matters – it's about how you arrived at your answer, and whether or not you articulated and justified that properly along the way.

Two Mistakes to Avoid

1. Don't fall into the trap of thinking that just because you're doing well on the quizzes that you will do well on the midterms.
    a. Weekly quizzes are about 3x the difficulty of the pop quizzes. Midterms about about 10x the difficulty of the weekly quizzes. The main reason for this is the time constraint. If you barely have enough time to finish your weekly quizzes then you'll definitely not have enough time for the midterm. The professor assumes that by the time the midterm rolls around, you will know the material without even thinking about it. Study with this in mind, and do practice questions under timed conditions.
2. If you're doing poorly in the proof writing department, don't assume that this "section" of the course will soon pass, and you can just get away with not knowing how to write proofs properly.
    a. As soon as the proof writing phase of the course starts, the entire course changes. The proof writing techniques you learn early on will be used over and over again. If you don't learn how to do them early on, then you will continually miss points for making the same mistakes over and over again. If you're having issues writing proofs, get help, and get help sooner rather than later.

Personal Development - Math 22

Advice for future students:

Recommendations:

- This class is very heavy on understanding as the key principle, and a lot of chapters in the book are quite distinct from each other. Review old and new material frequently, as it will help you gain a better understanding of the whole class.

- Spend quality time on homework. In other words, consider homework to be fully complete when you understand how to solve each and every question.

- Structure is important in this class, and the English is very strict. If English is a weak point, it has to be worked on. The book has a long list of vocabulary that you'll need to remember, as they will be the source of your proofwriting.

- When solving homework problems which do not need to be proven, it is best to get into the habit of providing complete solutions (with English) as if you were *partially* proofwriting. It will help you understand the material that you are studying further especially if you only know the answer but not the reason why that answer holds true.

- Have the mindset that any material that you might not fully understand will most likely show up on your next quiz or test. If there is something you don't understand, get help by asking the teacher in class, asking your fellow students, or asking during the teacher's office hours.

Mistakes:

- Assuming too much on what material might not be on midterms, quizzes.

- Not studying *efficiently* (this class has helped me improve my studying habits).

- Not fully understanding why certain proofwritings are done in the way they are performed.

- Attendance, and missing lectures. A good visualization is to imagine that if reading the textbook is like planting seeds in some soil, then attending the lecture is like fertilizing the soil properly, doing your homework is like watering the seeds, and thinking deeper into the material is like letting the plants grow. On normal soil, you can expect the plants to grow steadily or not grow at all, where as on fertilized soil, you can expect the plants to grow profoundly because they have the proper nutrients.

- Procrastination, not fully understanding certain theorems and not catching up with the material.

Personal development

Suggestions:

1. Don't think this class is easy even you have finished all calculus! Take it serious from beginning! The reason is the class is getting harder. If you don't follow at the beginning, you are most likely fall behind a lot.
2. Do all the homework. Because this will help you prepare for three midterms and test. More importantly, this can help you understand the material better.
3. Do not take notes all the time in class. I realize it is better to follow and think in class instead of taking notes without thinking.

Mistakes:

1. I thought this class is easy at first. So I didn't pay enough attention to the class till I got my bad midterm score. I should have study hard at first. The reason is most materials are based on the first a couple chapters. It really hurts my whole grade.
2. I didn't pay attention to class. What I do is write down all the notes on the board. This makes me study less efficiently. This is considered as a mistake too.

Advice for Future Discrete Mathematics Students

As a student who is just about to work on his final for Discrete Mathematics (otherwise known as Math 22 by De Anza College's database) and pass the course, I want to give out some advice and recommendations to any of you who will take this course in the future.

For one thing, you should always have a focused mind when it comes to material. Take notes and listen to the professor on what he will teach you. Read the textbook carefully as it will be your one, true friend for this course. If necessary, read the textbook before the professor covers a particular section(s) in class, that way you can get sense or feel for that section(s) before fully understanding what is being taught to you.

Secondly, never be late on your homework by any means necessary. Because all of the material in Math 22 is covered in 3 months (12 weeks), the course goes by very quickly and it is never good to stay behind when it comes to homework. The professor assigns homework every single day so once he assigns it, do not delay on it for more than 24 hours.

Last but not least, use office hours whenever you have the time to do so. Office hours are extremely helpful as the professor will clarify a certain mistake you made on a quiz/midterm problem step-by-step, a definition or theorem you are slightly confused with, or anything that you cannot digest easily. No matter what it is, he is always happy to help you out in your time of need.

This now comes to the part where I talk about my personal mistakes that hurt my success this quarter. While I understand the material that is being taught to me, I tend to over-think too much on it. Basically, what I am saying is that whenever a midterm is given to me, I think too much on how to tackle a certain problem and I waste time on trying to solve it and the remaining problems. This leads me to randomly put down answers or proofs that I think are legit but it the end, I feel hurt instead of satisfied.

That is my first mistake. My second mistake is that whenever I'm trying to prove something, I automatically assume that the given equation is true when, in fact, I should only be assuming the premises that come before said equation, which is the conclusion in proof-writing. I do assume the premises but in the way I write my proof, I automatically think the conclusion is true. This is a very easy mistake that many students, such as myself, encounter when they first learn proof-writing in a Discrete Math course. For all of you future students that will take this class sooner or later, brace yourselves for Chapters 4 to 8.

ADVICE AND MISTAKE

The first advice I think would be most helpful to new students is to do homework early and regularly. You should start doing homework on the day materials are presented in class. Don't wait too long to start doing homework because it will take a long time to recall the material. As in my case, I pay more attention to other classes, so I put my homework on hold for 2-3 days after the actual lecture. As a result, every time I do the homework, I need to reread the book, and reread my notes. Then I have to rethink everything. You can save a lot of time by just doing the homework right away after the lecture. It takes about 1-2 hours to do it. But it might take up to 3 hours to do homework that you put on hold for more than 3 days. And also, you will have to do the work for 3-day homework, not 1-day.

The second advice is to ask when you don't understand. You can either ask Mr. Lo in class or in his office. If you don't want to ask him in class, just go to his office hours. You will be amazed how easy it is to talk to him and you will look less puzzled after each talk. You can ask a friend that you make in class. But frankly, no one is that good to answer all of your questions correctly. So it is always the best way to just go straight to your instructor and ask.

Here comes the last advice. You should always be careful in doing the exams. It is easy to just look at a question and put down your thoughts. In this class you study a lot of proof writings and logical steps in order to solve a problem. So this is how to make the readers understand what you say, you need to be careful in writing. Every notation and every symbol must be right. By right, I mean right words, right symbols in a right place. Students will regret not doing this after the instructor take off their points.

Lastly, this section is about mistakes that I made during the course. I was often late for the quizzes and the exams. As a result, I did not get enough time to finish them in a right way. Usually the quizzes or the exams start earlier than the official time for the class. I should have taken advantage of this sooner. Another thing is I did not practice exercises regularly. It was a disaster to look at a familiar question not knowing how to answer it right away. I had to go to my brain shelves. I looked up which section the question was in. Then I took it out and applied it. By the time I finished it, everyone had finished two more questions ahead of me. I guessed the more practice you put in, the more intuitive the material became. So I should have practiced more.

One last thing is to wish you, whoever read this piece of writing, best luck. I enjoyed studying discreet mathematics. In fact, proof writing enlightened me. In the future, I imagine I could use all of those useful techniques of proof writing for my writing and my arguments both in academics and in life. Hopefully you will too.

It is first worth noting that for most people Math 22 is a difficult class. It is important to make sure that you can make the time commitment of one to two hours per day for reading and studying. This is because the class gets progressively harder. You will have to do more work toward the end, especially if you didn't fully grasp each topic the first time around. If you make sure that there are at least two free hours of study time in your schedule every day, you should have time to read the book and do the homework assignments. Also, try to read the book ahead of time to confirm that the subject indeed piques your interest. I feel that it is crucial to have an appreciation for the material and its significance in order to stay motivated. Also, having a vague idea of the concepts before they are taught is helpful. Finally, going to office hours is extremely helpful, as one-on-one instruction is much better at getting a point across. Bert is a very detailed instructor who makes it his priority that you know what's what. So don't waste the opportunity.

I would have to say that of my two greatest mistakes this quarter, the first was allocating large pockets of time like the weekend to get work done rather than doing it at a steady pace. Other commitments have a tendency to spring up and leave me with less time than I thought I had. It is much better to work on the material while it is still fresh in your brain. Second, when personal circumstances made me fall behind, I did not fully accept the decreased capacity and consider the possibility of withdrawing to complete the course later. It is important not to overestimate one's abilities. A W on your transcript looks better than a shabby grade.

Advice

1. LISTEN IN CLASS. Mr. Lo is a great teacher, pay attention

2. Take notes for only things you will remember to look at. Some things Mr. Lo writes on the board are more important to remember and others he puts simply to help the depth of our understanding

3. Think about problems outside of class, this is a class for people who want to take it. If you are interested and you put effort this class is hard but "fun"? I guess

Mistakes

1. I didn't read and understand theorems and definitions well in the book, I paid heavily on one exam

2. I rarely read the book before class, make that a habit.

Last Personal Development Exercise

For better understanding the material student should do homework right after it was assigned. If you do the homework late, your understanding of the material will be lower and lower. In class, student should ask the question and if possible, go to the office hour to ask the question. By asking the question, student has a chance to make sure that they truly understand the concept and it also help with the homework assignment. Student should also read the text, even though they already understand the lecture because some material is missing in the lecture.

My mistake

-I didn't come to office hour regularly and didn't ask any question in class. Student should come to office hour because its help them with their homework and the understanding of material.

-I didn't read the text book which contains much information that didn't appear in the lecture. Student should read the text book which will help them to do their homework.

3 recommendation:

Pay attention to English language, specially and vs. or. This math class is all about writing proof. The language in the proof is very important. And vs. or, for some vs. all, and all the "little" word in the proof make big difference.

Do homework and write down the proof carefully. Don't just read the solution. Knowing how to prove something doesn't mean you can write down the proof properly. Learn how to write a proper proof may count for 80% of the score in this class.

Read your note and text after the lecture. Pro. Lo may ask you to read the text before also. However, it may not as importance as read them right after the lecture when everything still fresh in your mind.

2 mistake:

Thinking that I know how to solve the problem and skip it or just read the solution to see if I got the right answer.

Didn't read the text. There are something in the text that aren't in the lecture but will be on the quizzes and tests. So read the note only is not enough.

Personal Development Exercise:

3 Recommendations:

Please look at every proof very closely and try to understand the very detailed of it. Knowing the proof well helps you remember the entire process of the problem. It also makes your life so much easier on remembering the equations/theorems.

Read the textbook prior coming to the class is really helpful. When you read it before the lecture, you might have some confusion; but they can be solved during the lecture by asking questions and listening to professor's explanations.

Making flash cards of all definitions and theorems are highly recommended. Another way is to write them out on the white paper, in booklet format. Both of them become very handy and helpful because you can take them anywhere and study at wherever you are.

2 Study or Personal Mistakes:

Being so much behind on reading textbooks and doing homework hurt my grade a lot! "Do your homework and reading" doesn't mean to just look at the answers from the back of the book or skim through the textbook pages. It actually means that we have to read and try to understand the concepts clearly and have more practice by doing homework exercises. Moreover, while doing homework, don't just easily skip the problems that you don't know how to solve, make sure you go and ask someone who masters the materials well - it is vital to know everything!

I've missed several pop-quizzes and in-class quizzes that actually pull my grades down a lot! When you have a quiz, be prepared for it because every single point counts and it makes a big difference on your grades so don't let it go easily. You can do better on the test by learning the mistakes you made in the quizzes so it's a big chance for you to test your knowledge.

Personal Development

A) Reccommendations

1. Borrow another discrete math book from the library. They could explain a topic in a different way, giving you two views on the same topic. Also there will be example problems you can work on outside of the assigned textbook
2. If a problem is difficult, take a break and come back to it later. Take a break could help you reset your mind a little. It will give you a different view of the problem after a short break. It might give you more ideas on how to solve it.
3. Study discrete math as the last topic of the day before bed. I got this advice from a former teacher. It helped me understand programming concepts a little better. I believe applying this to a discrete math class will also help

B) "Mistakes"

1. Don't put off reading material until after the lectures. It really helps to see what topics will be talked about during lectures. Seeing the material after the lectures doesn't really help, because for me personally, I would just look at it pretend I know the topic fully and move on. It works for pop quizzes, but not for midterms
2. Review mistakes on all quizzes and midterms. It could help you see where your mistakes are, and how to improve on them. If you don't review the mistakes, chances are they might come up again in a different exam.

Recommendations for Math 22:

1. Do the homework – I can not stress enough how important this is, basically if you do the homework you will understand concepts and have practice enough to ace quizzes and midterms. Doing the homework also keeps you in check of where you stand in the class and how much you actually grasp the subject.
2. Study at least 2 hours a day – You should spend 1 hour reviewing the lesson learned that day and the next hour doing the homework assigned. This will make sure you are up to date with the curriculum and will always be prepared for a pop quiz
3. Practice your formal proof writing – Do not stop until you have made sure your formal proof writing is perfect, or at least near it. Half the class is based off of proofs, and if you don't have the formal set up of a proof ingrained in your head, there's no way that this class will be go smoothly

Personal Mistakes:

1. Not reading the book- Each lesson came with several examples that I should have read thoroughly to understand the concept. Professor Lo even included some of these examples in the midterms, which made me regret not going through each lesson carefully.
2. Not putting enough time into studying – For each midterm, I would slack off until the very last night or so to start studying for it. This was my biggest mistake in the class, if I had only started studying a week before each midterm I feel as if I could have pulled off a decent grade for each of them. Like the professor says, proof writing does not happen overnight and only practice and more practice will help you master it.

3 recommendations to increase your chances of success in discrete math

- If you're looking to save money on the book, resist the temptation to buy an older edition, or rely solely on a digital version. You can usually find a decent used or new international softcover edition for less by using dealoz.com. In most other classes you can get away with an older edition but Epp's book seems to have changed significantly between revisions. Having an up to date, physical copy of the book is necessary to be able to keep up with your responsibility to read and complete practice problem sets.

- Discrete math is usually only offered once during a quarter at DeAnza; it will be necessary to build your schedule around the time lectures are held. If you usually like to have lecture in the morning but discrete math is only offered during the evening, it may be worth dropping until another quarter. This class requires you to be switched on, so the closer you can fit it into your "normal" schedule will be to your benefit.

- The material in discrete math can be difficult to follow even for people who speak English natively. You do not want to make assumptions about anything you will be studying. Scrutinize each new concept until you understand it and don't be afraid to ask for clarification.

2 pitfalls to avoid

- If you know you are going to miss a lecture, be sure you know somebody else in the class you can rely upon to take proper notes, and that they will not also be absent on the same day. If all else fails, take advantage of the resources outside of lecture to be sure you are up to date. You do not want to wait until there is a quiz or exam to find that you have missed a crucial piece of information.

- Have an easy way to check your email multiple times throughout the day. You might not think this would be an issue for a group of people focusing on computer science. Keeping up with the Professor's communications both inside and outside of class is the best way to avoid any misunderstandings.

Recommendations

0. When checking your homework, make sure to at least look over the other problems even if they aren't assigned. Looking over the other questions will give you exposure to different types of problems even if you don't actually do it. Asking questions about other problems will also help your knowledge.
1. Make sure to bring any discrepancy, no matter if it might seem trivial, to each bring your own question days. These are the last days before each midterm that you can get a clear explanation from the teacher. Even if you don't have any questions try and look for any topic you might have trouble with.
2. When reading a section from a textbook, make sure to take note of which topics you have trouble understanding. The next day after the corresponding lecture you should re-read at least those parts on which you had trouble understanding. Going through the whole section again would be helpful as well.

Mistakes

3. Do not assume that just because you can answer all the homework questions that you will do good in the class. You will encounter problems not from the homework many times during the period of the class. That doesn't mean you shouldn't do the homework, it will help you understand these other questions.
4. If you do well in the class during the first midterm period, that does not mean you will continue to do so. The class' difficulty ramps up exponentially after the first midterm when the bulk of the course topics are introduced. You should consult the teacher after the first midterm on hoe the rest of the course will go.

Last Personal Development

Recommendations:

1. Know the definitions. This class will be very different comparing with any other math class you taken before. There won't be any hard algebra, but more logic and proving will be involved. So you will need to know your definitions as well as possible.

2. Be specific and detailed. In this class we will need to prove things that are at the very basic level of math. Even for things that may seem very obvious, you need to specify where it came from by definition or theorem.

3. Discuss your logic with others. Since most of the class has a strong emphasize on logic, it will be really helpful to talk to others. Sometimes you can solve a problem by sharing ideas with each others.

Mistakes:

1. Don't pile your homework. You will need as much practice as possible to success on tests. Not only to know the material well, but also solving problems efficiently.

2. Don't make unnecessary assumptions. Sometimes it will be very attempting to assume things that aren't necessary true or even what you should prove. So make sure to specify each step and write it properly.

Last Personal Development Exercise

[a] Three recommendations for what a student should do to increase their chance of success, and why each one is helpful.

1. Highly recommended to attend office hours to ask questions if you are having any trouble. This is important because some of the sections in this class go by very fast and understanding the content can be time consuming without extra help.
2. Make it a priority to do the homework problems that do not have answers in the back of the book. They can help you prepare for pop quizzes, Friday quizzes and midterms. You will be familiar with how to approach problems which can save you valuable time on quizzes/exams.
3. Work with other students. This is always a good idea because you can feed off of each other's ideas. It'll also help break the ice with your classmates which can lead you to be *less shy* to ask questions and/or participate in class.

[b] Two study or personal "mistakes" that you (or someone you know) made during this quarter that really hurt your (their) chances of succeeding and why specifically each one had a negative impact.

1. One of the major mistakes I made during this quarter is that I automatically assumed that I knew how to do things after one lecture or doing just a few problems. Instead, I should have kept on practicing problems and re-read the sections that I had trouble understanding. Also, attending office hours would have helped me dramatically but I always put it off.
2. Another one of my mistakes was that I let the homework pile up on me. I didn't allocate my time wisely. Putting off homework will have negative circumstances and it will catch up to you very fast. It's hard to keep up with the homework but it's even *harder* to catch up on it.

3 things you should do to success in this class:

-Read within one hour after lecture; if not, then one hour before sleep; if not, then within 24 hours after lecture.

Since right after lecture, your mind is still fresh wit it, so reading within one hour will have the best result in getting the material in your head. Before sleep will be the next best. Within 24 hours will be the last chance to have the best result.

-Arrive early on quiz and exam days.

If you feel you don't have enough time to finish your quizzes and exams, try to arrive 5 minutes earlier than the schedule time. If you still can't finish them on time, then that's another problem.

-Don't cheat. Don't try to cheat. Don't even think about cheating.

If you get a chance to stand in front of the class room, you'll be surprised how clearly you can see your classmates' hands, desks, actions. If you can see them, your instructors can see them too.

2 things you can do to do poorly in this class:

-Not reading the textbook at all.

College is different from high school. Instructors in college will only lecture the parts that seem complicated. The rest will be in the textbook for you to read.

-Memorizing proofs.

Don't try to memorize any proofs. It does not help. The only thing you can memorize is definition, but you'll need to understand them before memorizing them.

Recommendations:

1. Read the textbook prior to the lecture briefly, it helps you understand the material much better on the lecture. The examples on the textbook are important to go over again after the lecture because problems on quizzes or exams are base on these examples.

2. Do the corresponding homework on the section right after or on the same day of the lecture to keep your knowledge fresh. Finish all the homework with solutions first, then try to do the ones without solutions with other students together.

3. For reviewing midterms or quizzes, do not just go over the quizzes you did before. The concepts, definitions, or exercises on the textbook or notes are the things you need to really focus on.

Mistakes:

1. I know someone look at both the exercises on the textbook and solutions on the back at the same time, trying to save time of writing down his own solutions. It's really bad habit, especially on the chapters of proofs.

2. I did not talk to my classmates or go to the teacher at the beginning of the quarter, and it made me have no chance to ask questions. It is a class that you need to communicate with others to really understand the definitions or the process of solving problems.