3 Recommendations:

1. For proofs, it'd be ideal to actually get pencil and paper and write everything down, because then you'll know the wording of the proof, instead of just looking over it and understanding the concepts. The proofs are where the major points are at in this course so writing them perfectly will be ideal.
2. Attend every lecture because the professor can teach very well. An hour of lecture will offer more learning than studying at home for two hours. In addition, you may ask questions that you have during lecture time while at home you may be stuck and the answer isn't on Google
3. Attend office hours. The professor wants you to succeed, and is willing to help you be successful and from the looks of it, he will know 99% of the time how to answer every question that you have. One question could save you hours and hours of studying

2 Mistakes:

1. Always get enough sleep. This quarter I stacked units on units and the workload of this quarter plus my bad sleeping habit often lead me to lacking sleep. In the first few days you'll do okay but the missing hours catch up and soon impair you so much that 2+2 problems will cause you major points
2. Find a study buddy. It's hard to find a friend in a math class since there aren't group activities but in this class the partner quizzes will guarantee you a study buddy. The point is to find this fellow classmate at the beginning of the quarter because if you do so, then the solo quizzes at the beginning of the quarter will be easier, almost like they are partner quizzes

Personal Development

[a] 3 recommendations for what a student should do to increase their chances of success, and why each one is helpful.

1) Read the book before going to lecture. This tip is good for all classes but very important for this class. Lecture goes by very fast and it is hard to keep up if you don't already have a good preview of the materials.

2) Learn and memorize definitions. This is especially important when you will have to write proofs. Proofs require extensive knowledge of definitions and it will be very hard if you don't know them. Also, there will be questions on quizzes and exams that ask for definitions. So learn your definitions!

3) When writing proofs, it is important to learn the systematic way of how to write them. There are usually steps to how to write proofs for different kinds of proofs. Follow these steps down to the last detail and you should be ok. But make sure you understand intuitively of what the proof requires because in rare cases, the systematic steps will not help you.

[b] 2 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 mistakes that I made was that I did not keep up with materials. I let it pile up and it was extremely difficult to catch up. This resulted in me not being able to read materials before class because I was worried about old materials. This is a very fast pace class, homework is assigned almost every day and is expected that you finish it within 1 or 2 days after lecture. And because of this, falling behind is the worst thing you can do in this class.

2) Another mistake I made was that I did not study with a partner. I think that studying with a partner and talking about proofs is a much better way to study. Talking out loud gives you a chance to see your mistake and you will get a better understanding. Writing proofs is different than doing normal systematic math. You can check your answers in most math problems but cannot check in proofs. By talking about proofs with another person, you are able to realize mistakes easier and thus be successful in this class.

Sanjana Agarwal
Math 22 Winter-2012

Personal Development

The three recommendations I have for students are

That students should thoroughly check every proof for mistakes. By doing so, they will help catch mistakes sooner and not loose points for small errors on quizzes and test. It will also help one practice the right way of doing the proof.

That students should put extra effort into understanding the material. Because unlike other math class, one cannot simply pass the class by solving problems using formulas or mimicking steps from the examples in the lecture or book.

That students to attend lectures regularly. Attending them is really beneficial they help a lot in understanding the material. It also clears up a lot of misconceptions about the material.

One of the mistakes that I made was that not finishing the homework on time. This really harmed me because I was not able to spend as much time on the homework as need. However, later finishing the homework made me realize how much it helped in the preparation of the quizzes and tests.

Another mistake I made was not working on the homework in a group from the beginning. That really hurt me in the class, because I wasn't able to correct my mistakes early on. Later I realize how helpful it was when others corrected my mistakes and I was also able to avoid possible errors, when I discussed the problems with others.

PERSONAL DEVELOPMENT EXERCISE (MATH 22)

RECOMMENDATIONS: -

1.) If you are taking math 22, do not assume that you can easily pass the class by just doing the minimal work. You will not be able to get A in this class even if you think that you are expert in math. Do all the assigned homework and if you have time, work on unassigned problems from the book. It will help you understand all the concepts more clearly. Not doing homework on time will lower your grade on the midterms and quizzes which will eventually have negative impact your final grade.

2.) Start working with another classmate from the beginning of the class. This will help you understand the difficult concepts from different point of view. If you think you don't need anybody to work with, change your perspective. You will eventually need somebody in order to succeed in partner quizzes.

3.) Arrive early on all the quizzes and midterms to take advantage of the extra time. With some extra time, you can avoid making mistakes that you will make due to the shortage of time. It will be beneficial while doing the quizzes and midterms which include lots of proofs.

MISTAKES:-

1.) Start studying from the first day of the class. I did not take this class seriously for the first two weeks and did not study hard for the first midterm. I could not get an A which I could have gotten if I would have studied harder.

2.) I procrastinated doing homework for the last couple of chapters and ended up paying heavily on the third midterm. At the end of the quarter, I was left with little time to catch up and revise the material for the final exam. This mistake has affected my overall grade.

[a] 3 recommendations for what a student should do to increase their chances of success, and why each one is helpful.

1. First recommendation would be is write proofs that would not be in the book and be able to write proofs from the book like its second nature because if you are able to write proofs efficiently then when a problem arises, it would become easy.

2. Second recommendation would be to study, study, and study. Do ALL homework questions and keep repeating them until you know it like the back of your hand. In doing this any question that comes up on the quiz and test would not come as a surprise.

3. Lastly, my last recommendation would be to ask questions on anything, even small, that you have that needs clarification. Doing this will not only help you better understand problems, but will encourage more people to ask questions big or small.

[b] 2 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. Have a study group of more than 2, preferably 4, but more is always better. The reason behind this is that you can get a sense of other peoples reasoning to answering certain problems and they can get your input. Also, it helps keep you on track to doing HW and studying.

2. Another mistake that I made was not reading over the chapter and try to do each and every problem in the book. Not doing this made me less capable in understanding each problem.

Luan Bui

Math 22

Math 22 personal development exercise

Three recommendations:

1. Do as much homework as you can.

This class is so different from other math classes that I've taken before. It doesn't use much of numbers or algebra. It is mainly based on understanding definitions and applies it systematically (not intuitively). That's why the only way to get use to with this new way of thinking in math is doing homework.

2. Be awake and conscious when you study.

Since this class requires us to think about math or English in a different way. Therefore, it is very easy for us to assume that our thinking is correct and then it would cause us bad grades. Being awake and conscious is one of the way to help you avoid those "seem-to-be-correct" thinking. Don't just think that our thinking is always correct; we have to be very careful while solving problems. Always be conscious in order to realize our mistakes since they are hard to recognize.

3. Asking questions while in class

Because there are not many tutors for this class, it is a good thing for you to discuss with professor right in class whenever you get stuck in understanding some concepts. If not, you might get lost from that moment because it could be the fundamental concept for the whole section. Then, later on you will find it very hard to solve the homework by yourself at home. Then, you get frustrated which is not the good mood whenever we do math. Therefore, while the professor is lecturing, if you don't get any part of the lesion, you should better ask him right away.

Two mistakes to avoid:

1. Don't just simply understand the concepts intuitively, we also have to understand them systematically.

There are many definitions, theorems in this class. However, you don't just assume that you only need to understand them intuitively. Because many proofs in this class based on very small detail in the definitions or theorems, so it is very easy for us to forget those small details in the definitions or theorems. Then, you will have a hard time try to think of a solution for a problem. If you learn how to solve the problems systematically, you will easy realize what you steps you need to do to solve a problem.

2. Don't wait until the weekend to do the homework

It will make you forget to section's materials. From that, you will spend more time that it should be to solve problems. Another worse case is that it will make you feel frustrate then you will feel less confident when you take quizzes or midterms. Consequently, you will receive a bad grade.

Personal development

Advices:

1. Study, study, study, and be very well prepared for the first midterm. Even if you do well on the quizzes you will still want to study for the first midterm because it will probably be the easiest midterm you will take in this class and it will helps carry you through the quarter?
2. Keep up with the class. DO NOT FALL BEHIND. This means you go to lectures and do the homework once you get home. Keeping up with the class is one of the key points to passing. Because, LAST MINUTES STUDY WILL NOT BE VERRY EFFECTIVE.
3. Study from your quizzes for midterms. I do this before every midterm and I think it helps a lot.

Mistakes:

1. One major mistake I made was that I didn't study enough with problems that I thought I understood. When the quizzes came, I didn't know how to do that problem with the same concept, only harder.
2. I memorize instead of trying to really understand. I think that is why I didn't do as well as I should.

Recommendations

1. Don't be afraid to ask questions. I hate speaking in class and I am really uncomfortable with asking questions in class in front of people so I never asked anything. However, I started making appointments and meetings with Professor Lo and these appointments were extremely helpful because I was comfortable asking all the things I didn't understand during office meetings.

2. Find a partner. I think that it's hard to work in groups sometimes but when we started the partner quizzes I *had* to work with someone. Once I started working with a partner I found this very helpful because I could bounce ideas off my partner and when I was stuck on a homework problem I could ask my partner for help before having to go to meet with our professor. Also, since this class has a lot of proofs it was helpful to see different ways of solving proofs.

3. Read the book sections several times. The book sections get long and can be tedious to read, but every time you review the sections it helps. At the beginning of the quarter I only read the sections once, but as the quarter progressed I started to read the sections over and over again to prepare for quizzes and midterms, and I found that reading the book helped me understand the notes I took in class and also helped me retain all the information we were learning.

Mistakes

1. Not looking at the past exams. Professor Lo keeps the past exams up on his website for us to access and look at and for a lot of the quarter I saw them there, but never bothered to open them. However, once I started looking at them I was able to see sample problems that were not just from the homework. The past solutions are a good way of studying and testing yourself because you are able to see the style of how Professor Lo writes his solutions and proofs.

2. Only studying homework problems I understand. For the homework I always tried to do all the problems from each section, but when it came to studying the actual problems I only practiced the ones that I thought were easy and I fully understood how to do. However, I did not focus on the problems that I had trouble with which was a huge mistake because I should have been studying those problems so I could gain a full understanding of the material.

Recommendations:

1. Do the homework. Everything you really need to know for the quizzes and tests is in the homework and a lot of it isn't covered in lecture, so make sure you do all of it. Doing the homework is especially helpful for practicing proof writing and it's very important to be able to write proofs efficiently on tests later on in the quarter.

2. Ask questions either in class or during office hours. If you don't understand something you should get help. Don't wait until you start losing points over concepts you know you don't get! It's also important that you understand everything because later topics build on previous ones, so those concepts are going to keep showing up.

3. When studying for tests and quizzes, review everything you have. Look over your lecture notes, homework, past quizzes, and the handouts on the website so that you know what to expect. Anything can show up, especially on the final.

Mistakes you shouldn't make:

1. If you're taking other classes besides this one, make sure you can handle the workload. The time it takes to do homework and read the book is more than you might be expecting and it gets worse as you go on. This isn't an easy class, so give yourself enough time to do what you need to do to get through it.

2. Do not procrastinate. The time it takes to do even just the homework is no joke. If you put off the work too much you might not be able to finish it (and could therefore miss an important problem type), you won't be able to ask questions about it before quizzes, and you'll be cutting down on time you could instead be using to review.

Recommendations:
1. Do all of the assigned homework: Homework consists of many problems with the solutions in the back of the book as well as those without any solutions. You still need to do ALL of them. I just did the ones with solutions since I can check my work. I didn't bother myself with the questions with no solutions. However, some of the problems with no solutions show up on the quizzes and midterms. If you do all your homework, there should be no surprises.

2. Don't miss any classes: This is not a good class to miss often if at all. Professor Lo's lectures and notes are a very good way to learn the material. He goes through the concepts and provides more examples for the work to be done. This makes it easier to know exactly what he expects from you on the quizzes and midterms. If you do have to miss a class, make sure to get the notes from a classmate.

3. Visit Professor Lo often: I usually never go to meet with my professors outside of class. However, for this class you should go meet with him at least after every quiz and midterm (if he doesn't already require it). He does post the solutions to the midterms and quiz on his website, however, I find an explanation with the work to be a lot more helpful.

Mistakes:
1. Not sleeping enough: This may seem obvious enough, but you should really try to get at least six hours of sleep every night before this class. When I had this class it was at 10:30am which really isn't too early. However, I stayed up almost every night until 4am or 5am doing nothing productive. Most days I could deal with this just fine, but there are days where you just feel horrible. Unfortunately for me, one of those days was a day we had a quiz. I completely blanked and lost quite a chunk of points.

2. Not knowing the definitions verbatim: You really have to know the definitions by heart. It's usually not good enough to use a definition you think is the same as the original. Every time I made this mistake, I asked Professor Lo what the difference was and every time he came up with a counterexample to my definition. If you mess up the definitions, you'll most likely miss a lot of points for the proofs. Keep re-writing them until you know them flawlessly.

Huiyun Yang
3/25/2012

Personal Development Exercise

Recommendations:

1. You must do your homework on time. It's extremely important to do your homework in time. It's not only because some quizzes and exams will base on some of the homework questions, but it can also let you be very familiar with the material since the you might not have enough time during quizzes and exams if you're not familiar with it.
2. You must do ALL your homework. Don't just do the homework which with hints and solutions. You should do ALL of them. Finishing the problems with solutions are definitely not enough.
3. You should learn to manage your time well. If you cannot manage your time well during the exams, you'll find it difficult to finish all of the problems. And that'll surely hurt your grade. And that'll also require that you're familiar with the material.

Mistakes I made:

1. Did the homework without writing down the details. As I did so, then I was not able to know how much time it took to finish the problems. So that made me unable to manage my time during the exams.
2. Remember the theorems well. Professor Lo really likes to give out questions about the theorems. And I did not remember all of them completely. So when it comes to exams, I cannot do them. So do remember them COMPLETELY!

Personal Development

Mistakes:

1- I did not manage my time wisely during the test. For many math classes at De Anza even (1D, 2A, 2B), the instructors will give you enough time to finish the test. But this class requires the students to use all of the 50 minutes of the test. You won't even have time to do scratchwork or check your solutions, so if you got stuck with one question, you should move on to a next one.

2-I should attend class more regularly. For example, if I miss one day of class, it would take me about 2 hours in order to learn the same material from the book myself. So, spending 50-minute with easy to understand lecture, examples, important announcements is much better than study 2 hours by yourself.

Recommendations:

1-Memorize and understand definitions and theorems: First, he will ask you in tests anyway. Second, writing proof requires you to apply definitions and theorems word-by-word.

2-Read all the handouts, and do all the homework: The instructor will test you everything that similar to homework, online handout, email handout, and he will only test these materials. So if you are comfortable with all the stated materials, you will be fine for quiz, midterm and final.

3-With proof, you should practice to the point where you remember to put down all justifications automatically and remember the format of a proof for a particular problem. Because of the time constraint, you will not have time to check your solution. Hence, you should practice your proof writing technique so that when you finish your proof, you are sure that everything is justified and your proof follow the correct format for that type of problem.

3 Recommendations

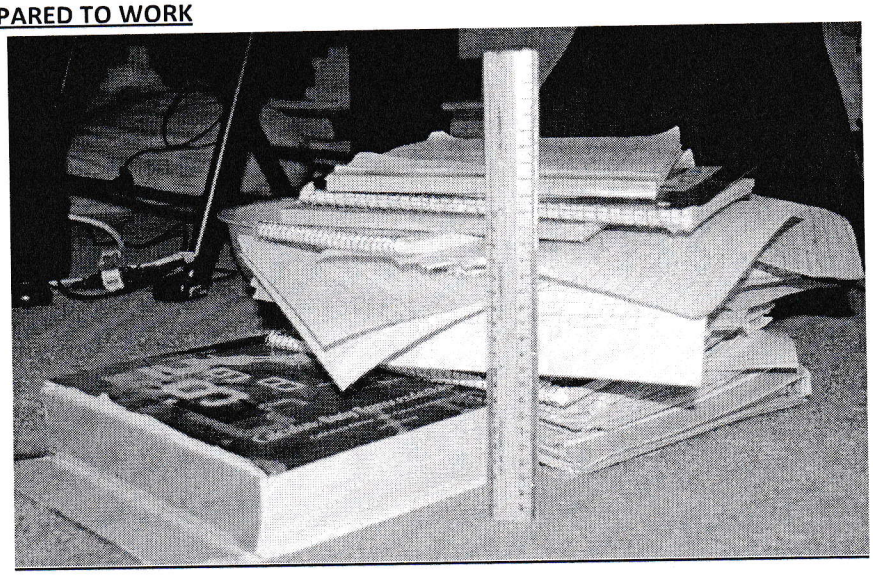
1. Doing all the Homework recommended and more
   - Doing all the homework is vital to your survival in class especially if you don't learn things as fast. Even missing one could hurt you since it might come up in the midterm and on the final. If you are not doing all the recommended homework, it probably means that you really don't get the concept of how the ideas presented in class. So ask question in class, office hour, or email Bert Lo since he would help you understand the probably clearly enough so you won't get lost.
2. Doing things in advance
   - Doing things in advance is helpful since the class is not like any other math class. When Bert Lo stated that it takes time to "digest" the material, he really meant that. It's not easy to grasp the concept by just reading the book in about an hour or four. One would need to practice more and ask question to your classmates if needed in order learn.
3. Sleep well before test or quizzes
   - If you have taken any math classes before where you often don't sleep and still do well on the class, it is not the case here. Thinking about logic is hard and a person becomes very illogical when he or she doesn't sleep. Taking a test without enough sleep is like being drunk while driving. Even though you think your cruising well on the road you'll eventually hit a deer. Although you might think you've practice enough, if you don't sleep you'll not only do the problems in the midterms slowly, but also when presented a new question, you might not be able to answer it.

2 Mistakes

1. Having a different version of the book
   - Having the right version of the book is crucial. The reason is that the assigned homework is what shows up on the midterms and quizzes. Having a different version of the book would not only throw you off, but also would most likely not help you see what kind of problems professor wanted you to focus on. This really hurt me as I took the class since I have the older edition and I figured out that I was doing a different type of problem and also some problems that I didn't need to do. There was also a circulation of pdf version of the book online I suggest to not use that as well since your not only stealing 21'st century style but also the book problems are not the same.

2. Imitating how the proof works rather than knowing why
   - There was a quote I heard before that "if you want to be an employee then you want to know 'how', but if you want to be the boss you want to know 'why'". This is true for this class as well whenever you do the homework. Sometimes student knows how one should format and write the proof, but the question is if you really know why the proof is true or wrong. If you rely on imitating the work done by professor you won't get too far in class since he might give you a question on the midterm that can throw you off guard if you don't really know the material. Knowing the definitions by heart will also help you succeed in the class.

Math 22 Personal Development Exercise

1. **DO NOT TAKE THIS CLASS LIGHTLY**
   a. Last quarter, I sat around thinking about which classes to take and saw this class on the list of math classes. I looked at the pre-requisites and decided to enroll because of its pre-calc requirement. As a student who finished calculus, I thought this class would be a breeze and didn't take the advice from professor Lo and previous students seriously... **THIS WAS A FOOLISH MISTAKE ON MY PART.** Listen to what people have to say...
2. **BE PREPARED TO WORK**
   a. 

   This is about 1500-2000 pages of work.
   I have done nearly every problem in the book. (No, I didn't half ass them)
   I'm not sure if I even passed.
   I'm not trying to scare you, but the amount of work required for this class is no joke.
   TECHNICALLY it is a 5 unit class, but should really be a 10-15 unit class.
3. **RELINQUISH THE NAÏVE LEARNING MINDSET**
   a. When you read for other classes, you can get away with superficially reading and not understanding the material; however, such an approach **WILL NOT FLY** in this class. The material itself is fairly straight forward and easy to understand (in my opinion) but the depth and intimacy with which you are expected to understand it is extremely deep. This class is not challenging in complexity or grandiose in creativity, but requires a legalistic mindset and a logical approach to things.
4. **STRONG MATHEMATICAL INDUCTION** (something that many of my peers and I struggled with)
   a. Personally, I am a very intuitive learner (which is why I found the class even more challenging) and strive to understand the material. If you so wish to take my advice, in chapter 5, a topic called strong mathematical induction is introduced. The key is to think

of it as (p^q^r^... ^k [where p,q,r,.. are the previous steps from the inductive hypothesis]
) (k+1) ; instead of k (k+1). (regular induction). GOOD LUCK!

Suggestions for the next class:

What you should do:

- It's one thing to write down everything discussed during lecture and do your homework according to textbook procedure. It's another thing to read what you've written and understand it.
- Review your notes and homework frequently. It helps in preparing for your tests/quizzes.
- Quizzes and midterms begin the moment you get to class, so try to get to class as early as possible. The extra time will help.

What you should not do:

- Do not wait until right before a quiz or midterm to do your homework. A week's worth of homework done within a few days is a lot to handle before a quiz. To attempt to comprehend 3-4 weeks' worth of information into a few days before a midterm is illogical.
- Do not think that you can understand the material easily. If you do, then the first problem of the next quiz or test will prove to be near impossible to comprehend.

Advice

1). Read the lessons before the lecture

I've found that reading the lesson before the lecture is very helpful, especially if you make a real effort to try to understand the material, rather than just read it and expect to learn it during lecture. While lecture is helpful, it is more of a supplement to your own understanding from reading the book. The lecture will clarify any problems that you had with the text, but reading the text is the best way to learn the material.

2). Keep up with the homework

Don't fall behind! While you think that you understood the lecture and the material pretty well, you may find that you will struggle when that material comes up on quizzes. Understanding how a problem is done when the teacher lectures and doing the problem on your own are two wildly different things. The teacher makes it look easy, so don't fall into the trap by thinking that you can do the problems without having to do the homework.

3). Go to office hours

More often than not, quizzes or midterms will have the questions from the homework that didn't have solutions. While you may not be able to figure out the problem on your own, you can still ask classmates or go to office hours to help solve it. Office hours also get you some bonus extra credit points so there really isn't a good reason not to go.

Mistakes

4). Find a reliable partner and study group

This class is intense, and going it alone isn't the best way to succeed. That being said, your partner and your study group are your best friends in this class. You want to find a partner that will keep up with the material so that you aren't carrying them through the quizzes, because the quizzes have proofs that might require more time, and if you're the only one who knows the material you may rush through proofs, making mistakes and lowering your quiz scores. Also, find a study group that is actually willing to study, and isn't lazy. Don't just pick your friends just because you'd feel bad if you joined another group. If you find that your friends just aren't cutting it, either tell them to shape up, or leave and find a better group.

5). Don't get complacent

I got a good score on my first midterm, and because of that I thought this class would be easy. Despite the teacher's warnings, I thought that I was an exception, aaaandd..that wasn't true. This made me complacent and I put less effort into studying for the next two midterms, and while I got passing grades I definitely could have gotten better scores had I put forth the time and effort into studying.

Recommendations:

- Find a study buddy even before the professor asks you to find a partner for the quiz. I found that discussing proofs and concepts with classmates helped me understand the subject.
- Attend class meetings, because Mr. Lo shows a lot of examples and makes things very clear. He showed us several proofs that were incomplete (not all steps were justified) in the book.
- Ask questions, Mr. Lo is very eager to answer every question students have. And listen to and think about the questions your classmates ask.

Mistakes:

- Putting off homework is a very bad habit. I put off my homework to the weekend sometimes and spent way more time on that than I would if I did my homework in the evening after lecture regularly.
- Underestimating time you need to spend on proof or problem. I did not time myself when I was solving problems at home while preparing for the exams. During the exam I had a lot less time than I had at home, which affected my grade. I suggest you to measure the time it takes you to solve a problem and try to limit the time you spend when you are preparing for the exam.

Last Personal Development Exercise :

MATH 22.

Advice for future Discrete math students.

1) If the instructor sends an email which has a problem or a question, try your best to find a solution for it. Those types of questions might end up appearing on one of midterms. Also it is always a good idea to ask the instructor to check if you got the right answer.

2) Do your homework immediately after the lecture. If you do that it will help you in understanding the following lectures. Also, the studding for the quizzes and midterms will be much easier.

3) If you have a question on one of the HW questions don't wait till the day before the test. Usually before the test so many students have question and you might not get the chance to ask your question. So ask your question at the very beginning of the class.

Personal Mistakes I did during this quarter.

1) When I was doing my HW, especially the proofs, I was not writing the logic and steps clearly and organized. When it was the time for the tests I found it hard. I forgot to do many justifications for my steps in the proofs.

2) When you have a partner quiz don't divide the studying material between the two of you. On the midterm it will be very hard to study all the material. Also, you will find yourself very behind and you can't catch up.

Math 22 Personal Development Exercise

Proofs are essential to Math 22, so it is important to learn how to write proofs properly. The last time you had to write a formal proof was likely when you took geometry several years ago. Proofs can be thought of as the essays of mathematics. Developing proof writing skills will help you in future math classes and even when writing reports. Here are several recommendations and pitfalls to avoid that will help you succeed in Math 22.

KNOW YOUR DEFINITIONS:

This is the single most important piece of advice that will help you succeed in this class. A large number of proofs and problems depend solely on understanding definitions. Take the time to learn them thoroughly AND thoroughly understand them. Do not just memorize the text without knowing what it means. Using flashcards to study definitions is a great way to learn them. Make sure you can explain definitions to your classmates; if you can't you don't understand them well enough.

Practice writing proofs:

This might seem obvious, but you need to practice writing proofs. Sharpen your teeth by writing the simple proofs so that when longer and more difficult proofs appear you have the proper foundation. If you aren't sure if your proofs are at the proper standard, show them to a classmate or your teacher. Don't assume your proof writing is correct.

Take good notes:

It is vital to have a good set of notes in this class. Do not get in the mindset that you can just copy your notes out of the textbook. The note taking process in class will help you learn. Your notes are an excellent source for important definitions and the proper structure of proofs. Make sure you take thorough notes in these two areas.

Ask Questions:

Asking questions helps to reinforce areas where you feel weak. You are also helping your classmates out when you ask questions in class. Even if you think you feel confident in a particular area, asking questions can provide reassurance or expose holes in what you know.

Work with your classmates:

Working with others positively affects both of you. You will feel confident explaining your strong areas and can work on your weak areas. You may also realize a hole in your knowledge when trying to explain something.

Discrete Math is unlike any math course you have taken, but with hard work you can succeed! Following these recommendations will send you in the right direction, but remember only you can decide whether you want to do well or not. Make sure to attend class and do the assigned homework exercises!

Advice on how to succeed when taking a proof-writing class

There are certain types of proof-writing problems such as contradiction proofs involving rationality or contrapositive proofs involving divisibility. Make sure you master all of them by doing homework every day. Also, try to list the types on a paper before taking quizzes and midterms. Then go through the list and put a checkmark next to it if you know how to do the type of questions.

3 other recommendations for what a student should do to increase their chances of success, and why each one is helpful

1. Do your homework every day. Most problems of the quizzes and some of the midterm are from the homework. Also, if you do your homework every day, you can ask questions to the professor right away during his office hours.

2. Go to the library on campus right after the lecture if you do not have any other class right after Math22. It helps you not procrastinate doing your homework. Also, you can refresh the lecture materials you learned 5 minutes ago.

3. Keep tracking your scores on quizzes and midterms. If you did poor on several quizzes, you can motivate yourself to do a better job next time. Also, with the scores, you can talk to the professor about the final grade you might get

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

- I erased several proofs during quizzes and midterms, and started writing another proofs. However, my prior answer was half right. Also erasing stuff is also time-consuming. I should have used my time wisely during quizzes and midterms.

- When I got stuck on a homework question, I looked at the solution key right away and understood it. So when I took midterms, I was unable to solve several hard questions because I did not understand the materials completely. Also, since the materials kept showing on other chapters, I had much more hard times to understand the other chapters.

Hey guys, just some fellow advice. I'm not going to tell you that putting more effort into the class will get you better grades. That's obvious. However, there are certain things that are more important than others. First and foremost, you need to understand the structure of proof writing. Even if you don't have the specifics down, or even a grasp of how to solve the problem, you will be able to earn a lot of points using the structures of proof writing. You will be able to write the first and last sentence of the problem which gives you further insight on the following lines of proof. However, that doesn't mean reading it and memorizing it. It means understanding each part of the structure, and why it's necessary. After that, learn the specific tools of the proof. There are several important ones that are essential to each method of proof. For example, divisibility and rationality help you solve direct, contradiction, and element proofs. Knowing what kind of problem it is gives you a better idea on where to start and what you need to show. Everything else is just practice and your own effort to understand the concepts more in depth. However, if you ever get stuck and don't even know how to start a problem, one of the things you should try is to formulate the simplest situation of that problem. Off the top of my head, I did this with recurrence relations, sets, and graphs. For problems where you have to find which proofs are correct and which ones are incorrect, the counterexamples are not always intuitive.

My biggest mistake was when the group quizzes started. I got lazy because not only did the concepts seem easy, but we also had a partner! That screwed me over. It was harder even with a partner. Anyway, I didn't seem to realize that till I did badly on several quizzes and it made it a lot harder to catch up. My second mistake was my method of doing homework. Some of the concepts seemed easy so I just jumped into the last several problems and tried solving those. But actually, the easier problems were more important because it reinforced structure rather than forcing insights.

Good luck!

Personal Development Exercise

Looking back to the beginning of the quarter, I can say that Math 22 is an entire math class of its own. My recommendation to those that wish to take this class is to do the homework, every single problem that was assigned. Since this class revolve around writing proofs, practice is essential. In other words, do not expect to come up with a correct proof on a quiz or exam if you have never worked on similar proofs before (on the homework). Proofs take time and thought. Time on the quizzes and exams is short, so realize that doing homework will ensure you are not shocked by a proof that you have never seen come quiz/exam time.

In addition to doing the homework, you can increase your chances of success in this class if you go to office hours, get a study partner, and read the textbook. Going to office hours will enable you to get help on problems that are hard to solve. In a proof writing class such as this, you will encounter many of these hard problems regularly. Understanding these hard problems will immediately give you confidence for any test or quiz that may come up. In my opinion, if you can do these problems, you will not be stuck on any problem on the exams. Even if you may not feel comfortable talking to people, definitely consider getting a partner to meet up with for the purpose of this class. There is only so much time in office hours, so getting a partner will allow you to clear any doubts you may have on the homework. Many problems on every homework assignment do not have solutions, so if you have a partner, you will be confident that the work you are doing is correct. In addition to paying attention in lecture, read the textbook for every section. If you usually have a hard time understanding concepts in lecture, like me, read the textbook before class. I can say that on all the instances I previewed the textbook before class, I still remember those concepts clearly (even after the class ended). I also find that you will enjoy any class if you participate in the lecture.

Two mistakes I made in this class was not reviewing for exams effectively and not attending to my diary regularly. When the exams came around, I would just look over all my homework and assumed that I would be fine on the tests. My poor scores on the final two tests prove the ineffectiveness of this method. I would never be able to tell which method of proof I should use on any given problem. In homework, you know what method to use since the homework covers a single topic. On exams, all the types of problems are mixed together. Avoid my mistake and start studying for the exams by making your own practice tests that cover everything to be tested (in random order). Another habit that you should be persistent with is to use your diary. During the quarter, I would log my study times for a couple of days and not even care about it for the next week. By not logging my study times, I was unable to identify any negative study habits. I always felt that I was spending too much time on all the sections. I now believe that when you feel this way, you may be using ineffective study strategies. Be proactive and talk to the professor about when you find yourself in the same situation. In addition, note down all the scores for your quizzes, assignments and midterms on the diary as you get them back. I failed to write down my scores for the majority of the quizzes, so I was at a loss towards the end of the quarter. You need to know how you are doing in order to plan ahead (maybe to drop the class or knowing what scores you may need for future exams and the final).

Although Math 22 can be thought to be a difficult class due to the different type of mathematics discussed, it is possible to gain a lot from this class, for it to be enjoyable and success to be achieved if good habits of study are implemented from day 1. Below are bits of advice.

Since the core material of this class is mainly proofs, becoming efficient in proof related problems is required to succeed in this class. Therefore, my best recommendation is to develop a habit of **memorizing definitions** discussed as soon as possible. If possible, get ahead of the material being discussed in class and memorize the next section's definitions even if you don't understand them. When the material is explained during lecture you will already have the definitions memorized and this will help you be more efficient as you do the homework.

This brings me to the second piece of advice which is to make sure to **study daily and get ahead class' lecture if possible.** I cannot stress enough how important it is to study daily, even if you have already done the assigned homework. Math is my favorite subject, I have passed Discrete Mathematics and Linear algebra with A's, and I have to say putting daily effort in this class was more crucial than in the other classes.The class moves fast and covers a lot of different concepts quickly. Therefore, in order to fully understand each principle you will have to learn/review/study material daily.

Another important recommendation will be to **focus on understanding the principles taught rather than the mechanical process of solving a problem.** Many times you will think you have understood the material because you are able to solve a problem in the homework by following the book's example. That's an assumption that can hurt you in future problems. This class is much more than following a series of steps to solve a problem. Rather than following a recipe to bake a cake, this class is about applying the principles taught in order to *make* your own recipe to solve a problem.

Last but not least, **take every quiz seriously**. When compared to a midterm, a single quiz might seem of less importance and you might feel tempted to give priority to a test of another class than prepare for a weekly quiz. Weekly quizzes are there for a reason and preparing for them will help you strengthen your knowledge of the week's material. Every quiz is important, aim to score high in each of them.

Along with recommendations I want to share a few mistakes I made that seriously harmed my performance in the class. The first mistake was to only do the homework problems which had the solutions at the back of the book. There where times where I didn't have the time to do all the homework problems assigned and decided to only do the problems with solutions. Big mistake. Even though you might be able to solve a few problems in the book, that is certainly not a good way to understand the material and prepare for a quiz. Find time, do everything you can to do every single homework problem assigned.

Lastly, the major mistake I made in this class was to lose focus on a few sections to try to catch up with the material. I had some major personal problems happen to me during this quarter which prevented me from keeping up class assignments. Things got better in my life and I was able to get back to regular schedule but the harm was done. Instead of going back and review the material I missed, I decided to focus on current sections to be back on track with the lecture given in class. This was obviously harmful because those sections I lost focus on were important. Every section and chapter is important and essential for this class. Even if you have personal problems, do everything you can to go over everything that was covered.

Recommendations (5) for proof writing.

1. Do not miss any class; else you have to pay for it. You can memorize more stuff if you look at them. In class you will get to know that what kind of mistake student make while writing a proof. And you have a chance to ask any question right away, if you do not understand them.
2. Keep track of your Diary so you can organize your time if you need more time to study or for practice after looking at your quiz score, and that way you can know how you are doing in this class, and how much time you need to give more time for getting your desired grade.
3. Do homework problem as much as possible, and use all different method to solve the problems, so you will be able to do any problem in all possible aspects. While doing homework first come up with an answer for a problem before you look at the solution or hint.
4. While writing the proof do not jump on to counterexample first start writing the proof. If you do not find any satisfied answer for any step then think about counter example. During practice make a habit to write whole thing, so that way you will be comfortable in exams.
5. Be sincere for your studies. You cannot learn proof writing in few days. It takes lot more time and effort. You need to practice a lot on daily basis, and need to review lecture notes regularly. Challenge yourself by doing extra homework in addition to the assigned questions.

Mistakes (5)

1. Need to write all proof start to finish, not only in mind, but also on paper. As per this I was not able to write proves in exam without mistakes, and possibly it took me longer to do this in quiz and in exams. I always run out of time in exams.
2. Needed to read book on regular basis before coming to class, so I will be aware of upcoming section. In addition, I have done homework on time so I can have ask those question in class for which I was having trouble while doing at home.
3. I did not ask questions in office hours frequently, and I did not have any study groups outside the class. I was doing all by myself, so no one was there to look at my mistakes. I should have taken the advantage of tutorial center.
4. Need to read all questions carefully in quiz as well as required a proof reading in exam. Later, I figured out that my most of the mistake was very impractical. I could have done better if I looked and read questions carefully.
5. After first midterm, I did not get enough time to study because of some personal issues. As I knew that it is going to be tough in letter on quarter, I should have drop this class with W.

In order for you to succeed in Discrete Mathematics, you must be willing to work hard, and you must have, or you must develop, an interest in learning the subject. This is true for any class you take, but it is essential here because it is necessary for you to understand everything that is discussed. If you don't, then you might find yourself unable to solve problems that depend on bits of information from previous sections. I would like to share with you specific lessons I learned during the duration of this course that, I hope, will help you succeed in this class.

1. **Understand all the definitions.** More important than just rote memorization is truly understanding all the definitions that are covered in this class. These definitions will become the building blocks of your proofs, and if you don't know how to utilize them properly, then you will constantly find yourself struggling to solve problems.
2. **PRACTICE, PRACTICE, PRACTICE.** Practice makes perfect, and this class is no exception. Doing ALL the homework problems will allow you to truly understand all the topics that are covered. In addition, it will prepare you for all the various types of problems that you will undoubtedly encounter on the quizzes and midterms.
3. **Understand the question.** I cannot stress enough the importance of this simple sentence. Whenever you are asked to write a proof, it is essential that you know what it is that you need to prove. The questions can sometimes be worded in a way that requires you to decipher their meaning before attempting to solve them. I urge you to take the few extra seconds this small step requires because it can truly make a seemingly difficult problem an easy one. In one of my midterms I attempted to prove a statement without understanding the question and writing down what exactly I needed to prove; not surprisingly, I couldn't solve the problem and time ran out. I attempted to solve the question a little while later, and this time I actually decided to write down what I needed to prove. The result? In less than five minutes I solved the question I spent ten minutes on and failed to answer during the midterm.
4. **If you are absent, make sure you learn whatever was covered on the day of your absence ASAP.** I was sick for three days and instead of actually learning what I missed, I just read over and copied a friend's lecture notes. What I should have done, and what you should do if you ever miss a day of class, is gone to a fellow student in the class and asked them to explain to me what I missed. This would have allowed me to understand what the notes meant, and I probably would have gotten a better score on the quiz that week. I eventually did talk to a peer about the material, but I would recommend you do this as soon as you can.
5. **Talk to people in the class outside of class.** For most of the quarter, I did all my work by myself and didn't communicate much with other members of my class. In the last two weeks I realized that if you discuss problems that you are having difficulties solving, there is usually someone who can help you out. In fact sharing ideas on how to solve problems will allow everyone to discover new, and potentially more effective, ways of solving the same problem. Now I realize that if I had interacted with my peers throughout the quarter, I would have had a better understanding of the subject and probably would have performed better on all the tests.

I understand that many of these recommendations are universal and apply to all classes, and you may already know some, and maybe all, of these tips. But sometimes it necessary to be reminded; and even more important than knowing is doing. I hope you will enjoy this class as much as I did, and wish you all the best in succeeding in Discrete Mathematics.

To anyone who wishes to take Discrete Math:

Discrete Math can be a very difficult course. Unlike in previous math classes where you would have simply used formulas to find a definite answer, Discrete Math expects you to be able to get creative in your problem-solving. When you write a proof, you need to be completely methodical, justified, and unambiguous. You will learn formal logic, argument forms, and different kinds of proof techniques, and be able to apply it all to a wide variety of mathematical concepts.

If you're looking to succeed in the class, you will need to have a thorough understanding of the course material. I cannot stress enough the importance of doing the homework, since it is the most effective way for you to understand what is expected of you and how to accomplish your goals. While examples will be given in class, they will not be enough for you to be proficient enough in the material for the quizzes and tests. There is also often material on quizzes that are only really covered by homework questions and often questions on quizzes and tests are incredibly similar to homework questions, giving you a significant edge if you've managed to keep up with them. You should also take care to memorize your definitions. Proof-writing in the class is very much based on your understanding of the definitions and theorems given, so it is incredibly important that you memorize them and, hopefully, understand them intuitively. You need to be comfortable with rote memorization and find a system for it that works for you. Finally, you should work with your fellow classmates. This class is a lot of work, and any help you can get should be openly encouraged. Share notes, talk to each other, study together, ask each other questions, and do problems together. This is especially important considering there are often partner quizzes given, in which you are allowed to work together with someone else, so you should try to get comfortable with others.

Perhaps my biggest mistakes when taking the class are having difficulty devoting time necessary for the class and not asking questions in class. Understand that Discrete Math requires a very thorough understanding of the material, and if you read my recommendations you will understand that you will be spending a lot of time on this class. Regardless of how many other classes or responsibilities you need to take care of, Discrete Math will always need a fair chunk of your time for doing homework and otherwise understanding the material. You should also take advantage of your instructor as much as you can. He explains things very clearly and you should not be afraid to ask for clarification if necessary. If you don't feel comfortable asking your question in class, you can always speak to him about coming to his office hours, and he is very accommodating to his students.

Math 22 is (when taught by this instructor) primarily a proof writing class. As such the class's focus is on developing technique and style in proof writing. Depending on your level of education thus far you may have had little or no experience in writing proofs prior to this point. I had not seen a formal math proof (other than the equations I was copying blindly from a calculus book, completely missing the point of the LOGIC of the proof) in over ten years before this class.

So my first recommendation to you as a new student coming into Math 22 is: **understand what a proof MEANS**. At some point you will receive the following information in some order, over some finite period of time: "A (typical) proof is a collection of statements guided by rules of inference to start from premises and logically come to a conclusion." Proofs must be shown to be valid and sound, otherwise they will not be accepted as having succeeded in their arguments. To understand the previous sentences you must understand what statements, rules of inference, premises, valid, and sound mean. Once you understand the mathematical meaning of those words, you can begin to understand the point and structure of a proof. Which brings me to my next-most-important part of this class...

Know all definitions all of the time. There are no cheat sheets, no 3x5 cards, and very little information give on the tests to guide you through a proof regarding e.g. number theory, set theory, or any of the other parts of mathematics you will explore. You are expected to read, interpret, and understand the definitions of everything upon which you will be tested, without help. Not understanding (really bad) and not remembering (less bad in the long run, very bad in the middle of a test) definitions will significantly hinder your progress. In addition, many definitions are hierarchical; if you didn't understand the last three, the next two will make no sense at all. So unfortunately the flow of the class tends (at least during any single chapter) to be very linear.

Also, **do the homework assigned. Do not necessarily do the homework NOT assigned.** This class is unbelievably fast paced. There is more new, different, unconnected material in this course than in any other math course I have ever taken. Depending on your math level prior to entering this course you may have seen some of the words and concepts in this course, but do not be fooled: discrete versions of concepts you have learned for continuous functions and theories can be subtly or wildly different, and how to approach these concepts (discrete functions, relations, algebra, etc) can be a frustrating combination of things that you already know that are still true, and things that you know which are not true at all for discrete mathematics. The homework is designed to guide your thinking away from your old habits and into discrete math habits. The homework NOT assigned is often asking you to explore a specific concept of mathematics further than this course will ask you to understand that concept. Working extra problems for that concept is fine if you have the extra time to spend. Don't do it otherwise; your load is big enough already. While you are doing homework, however...

Do the work assigned to you HIS way, not the book's way. I'm not supposed to be complaining about the book here, but as a matter of simple fact, this book doesn't teach you how to write proofs the way Bert Lo wants you to write proofs. So take careful notes when he writes proofs in class, and **do it his way**. Pay careful attention to his wording, his structure, and his flow. You will come to much less grief during test time.

Tying into the previous is the single most important thing not to do during this course: **never EVER get behind in your studies.** I've faked my way through plenty of material, slacked, caught up, and generally used my previous knowledge and a pretty good deductive ability to get around being lazy (of course we are all RARELY lazy, and would NEVER get behind...) You don't have any prior knowledge to bring to this course, and your intuition is only useful when you can bring the definitions and experience using those definitions to it. Which is what you will be tested on, constantly. The structure of this course already has you at a disadvantage: while you are prepping for the next quiz/midterm/whatever, you will ALSO be learning new material. I am particularly horrible at dealing with this kind of course structure, and found it to have the biggest negative impact on my learning and my grade.

Finally, **don't end up with a random as your study/quiz partner**. You will spend a lot of time developing your skills, and you'll fail a lot. The nature of proof writing at the beginning is that you don't understand how to wield the techniques of proof writing effectively yet. You will, but it's nice to have a good partner looking over your shoulder an correcting you as you get into trouble. Some companies embrace a programming development style known as XP, or extreme programming. The buzzword has been horribly perverted over the years, but one of the key concepts of the paradigm is that two programmers work side by side on the same code, one physically writing but both designing, and the other programmer checking for syntax/logic/etc kinds of errors which, if not caught early, can lead to a lot of tedious debugging later. I don't recommend that only one person write a proof between the two of you, but I DO recommend peer review and the occasional XP approach to trying new proof techniques. The added benefit of this approach is that during partner quizzes you will be better synced and capable of communicating/correcting each other quickly and efficiently.

It is possible to get a very good grade in this course. It is easy to fail or do very poorly in this course. I hope this letter gives you some insight in how to begin to prepare for the course even before you solve your first problem. The better you do early, the better (and more easily) you will accomplish your goals for this course.

Before you take Math 22, you should be 100% sure that you really have interested in Math and good at logic and English as a second language learner. Made your mind, and then you are ready to go.

On the first day of class, professor will give you greensheet of this class, make sure you read it very carefully. Since Mr. Lo will definitely follow all the policy on it, and give you a quiz about it.

Know exactly how many quizzes and midterms you will get, how many extra points are there, calculate how many points you could deduct from each grade.

Follow all the steps on the dairy he gives to you, DO your homework everyday! Or you'll be in trouble, because the assignments can be piled up and never get a chance to finish all of them.

Choose a good partner to study together, help each other.

My mistakes I made this quarter for Math 22 are as follows.

1. I should choose this course at least after done with Math 1A. Since I will have a brief idea about Math major structure.
2. I should have solid English fundamental, since this course include using lot of English expressions in some certain chapters
3. I should follow the homework dairy steps, since missed the pattern in doing first several assignments, I never get a chance to catch up the rest of the part.

Good luck with Math 22 and enjoy!

Personal Development Exercise.

In order to succeed in a proof-writing class, a student must take the time to review all the concepts of the previous chapters. The topics are not separate and the concepts are transferrable across the chapters.

Similarly:
A student should remember to get enough sleep in order to allow the concepts to sink in. Allowing the brain to rest allows for information to be processed and cemented into the long term memory. (It doesn't count to do the homework late at night, the brain is vulnerable to information coming in, but also slipping out again.)

Be aware of the other classes you are taking, don't try to load up on too many "hard" (other math, science) classes, diversify to give your learning a good dynamic. Narrowing the focus can cause too much pressure, try to have one "fun" class for every semester/quarter.

Things come up, it's true, sickness, accidents, but try to get at least a little bit of studying done every day. Even if it is only a half-hour of textbook reading, it keeps the brain on task and maintains the habit of consistent studying. Don't put off catching up!

Do Not…
Assume your study habits are perfect. Study methods for one math class (calculus) won't necessarily suffice for a different (proof-writing) sort of math class. Consistency and flexibility is the key when studying for a different style of math.

Undervalue flash cards, they are a godsend when definitions are heavily involved with the material. Even just writing them helps with remembering since what is written is etched firmly into the brain, don't think that you can just get away with that though. Use the flash cards!

Dear Student,

Math 22 is a great class! Before you start, here is some advice on how to succeed in this class.

Taking a proof writing class requires a lot of critical thinking. You must analyze the meaning of every single word that you read or say, because two words that are synonyms in English can mean two very different things in proof writing. Be sure to really look into what the writer is trying to say when analyzing statements. Many times, an argument sounds valid or a statement sounds true in English, but is actually invalid once you look at the structure of it. Focus on the structure, and whatever you do, do NOT go by the English translation that comes in your head. Also, make sure while writing proofs, you explain every little thing in the process of getting to the conclusion. Many times students tend to just, like our teacher says, "hand wave" through the proof and just write "this, so that, therefore that, the end" and since they didn't prove every step to move forward, they miss important things that could jeopardize their proof.

It is very important to do all the readings for this class. It is best to read the book before the class but even if you don't read it before class, at least read it after the teacher explained the basics of the chapter. A lot of times the book goes into details to give you deeper understanding about things that the teacher doesn't spend a lot of time on, like how to prove certain formulas or where certain formulas came from. This aspect of the book really helps when you don't remember a certain formula or theorem, but know how to find out and prove it to use it on a quiz or test. Another thing I would recommend is that you do all of the homework. The homework problems cover many different applications of the concepts we learn. Also, many times, the professor uses concepts based off of the homework and not explicitly stated in the reading in the book or in the lecture for the quizzes and tests. Another thing I would urge you to do is take time to read over the notes you take in class, even if it's for a few minutes per day. The teacher lectures on the main things that are important and gives really good examples, so it's good to know those by heart. If you look over things that you wrote in your own writing when it's still kind of fresh in your head, but not memorized because you just heard it, looking over it can be that one missing step to making sure it stays in your mind.

This quarter, I made the mistake of writing proofs throughout the whole quarter without getting them checked by the teacher. This hurt my chances of succeeding because I was continuously writing proof wrong for my homework, but never went in to find out where I make my mistakes so that I can fix them for the remaining tests. There is a specific pattern of steps to follow while writing proofs, and it is important to spend time with someone that watches over your process as you work on them to identify where you are going wrong or what style of thinking to use for the proofs. Another big mistake that students often make in this class is not working with partners before the partner quizzes. Even though both of the students may be content with their proof writing and both be good at it, it is not good to underestimate the disadvantages of not meeting up and writing a few proofs together or at least looking over each other's proofs. Not meeting up with a quiz partner before the quiz is harmful to your success because many times, each person has their own way of thinking and style of writing, and the short amount of time allotted for the quiz is definitely not enough for two different people to argue about which path to take. It also hurts your chances of getting along with your partner during the quizzes because if they understand a concept and get stuck on a little part, they expect you to help them out, but if you didn't meet with them beforehand and try to understand everything together and don't know how to help them on anything, it frustrates them, and they may just write on their paper without helping you, and either both of you will do poorly on your quiz while your partner does well.

Please take all of these things into consideration and I hope you have a great time in Math 22!

Personal Development

I think Math 22 is another type of mathematical class which I have taken before. A little algebra, more logical thinking. If you want to be successful in this class, you should do some following things. First, read the book. It's so obvious that you need to read the text book before you go to the class for all kinds of classes. It's a great helpful for understanding what the instructors are talking about. When you go home, finish the homework and read the book again, as the result you can have a clear idea about some theories and definitions in your mind. Second, read the detective book or watch the detective movie. Just for my opinion, I love to watch the detective movie. When I watch the movie, I will make me as a detector to train my logical thinking and solving the cases which will make me feel achievement and self-confidence in this class, since a lot of works in the class needs logical thinking. Do more logical thinking games and other things can help you develop your logic and prepare the class well. Third, brainstorming. I like this method to go over my class. Close your eyes and thinking about what you learned in the class and using logical ways to go through and memorize every theories is a good method to help you memorizing and control the theory as a tool to solve some problems. Just pay your efforts to do as best as you can. I think everyone can make it. Practice makes perfect.

There are several mistakes I have met in the class. Read the answer and write you proof clearly and carefully. As we all known, logic is so cautious. If you make a little careless mistake, then you will destroy your work. So you should be careful. Moreover, don't do your homework by your brain only, you should write down the whole procedure. I like to calculate some simple algebra by my brain without writing down the procedure. However, sometimes, I will make some careless mistake which is a shame thing for me since I know how to do it, but I don't get the credit. Thus, please don't trust your brain too much. Write down the whole procedure which is a good way for you to get the credit which you can get.

Finally, I hope everyone who take the Math22 class will be happy and enjoy the class. You can find a lot of fun in it. Good luck.

[a] advice on how to succeed when taking a proof-writing class

I would advise you that when you are working on proof problem, you will need to first break it down and write it out systematically, before you begin your proof. Because if you rely too much on your current intuition, then you will find out that your grade is not what you expect it to be. You will need to practice more of homework problem in order to improve your intuition to the next level.

[b] 3 other recommendations for what a student should do to increase their chances of success, and why each one is helpful

1. DO ALL the assigned homework problems, and do more if you can because it will help you to test your understanding of material, see your mistakes, and improve your speed for quizzes and midterms.
2. ATTEND all lecture classes because lecture will help you to understand more about what you are learning. Lectures are also the base for midterms and quizzes, beside homework.
3. READ the book. Don't even think that you will be fine with just attending lecture. You will be surprise of how much the book can help you. The book will helps you to confirm your understanding in lecture and provides you practices, advices, and example to help you prepare for midterms and quizzes.

AND

[c] 2 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. Cram is not a good way to approach this class. I agree that the class material is a lot, but you will need to stay on top of them. I made this mistake and it affected me on my understanding of the lecture and the material because you really have to understand the proof fully in order to write a correct proof.
2. I relied on my intuition at first and it cost me lots of points on midterms and quizzes. For this class, your intuition cannot really help you if you don't have enough practice and fully understand what type of problem you are approaching.