# Transcript: C959 Overview and Tips with Nina Rupert and Lisa Vandever

*The following transcript is a verbatim account of the video or audio file accompanying this transcript.*

Speaker #1 (Narrator):

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Speaker #2 (Lisa Vandever):

Welcome to our first podcast on discrete mathematics. We're going to talk primarily about discrete math 1. This is too help you get comfortable with the course and provide some quick tips and help get you started. My name is Lisa Vandever, I'm a program mentor in computer science and with me today is.

Speaker #3 (Nina Rupert):

Nina Rupert, I am a course instructor in Internet math and I cover calculus and discrete math 1 and 2.

Speaker #2 (Lisa Vandever):

Awesome. We will be working together to help you get a better understanding and how to get starting in discrete math. Now, Nina, I have many students who ask me, what is discrete math and how's it different from calculus and how do you describe it and how does it relate to other courses in our program?

Speaker #3 (Nina Rupert):

That's a great question that covers quite a lot of ground. First of all, calculus is really separate from discrete math. Calculus is about continuous motion, rates of change, things are happening very continuously, and in contrast, discrete math is discrete, but it's not about the continuity there. Discrete math is a very broad term for wide areas of math and including set theory, number theory, logic, linear algebra, the list goes on from there. If you see another course in discrete math somewhere, it likely covers a couple of the same areas as these, but it could be totally different, totally focused on something else. This one is geared towards your major computer science, you're the only students that take it and so it's really built with that in mind. In discrete math 1, you'll get a foundation of logic and set theory, and you'll also learn about graph theory, linear algebra, sequences and series and all of these things that are foundational to computer networks, computer graphics. Overall, I say the key difference in this course versus calculus, is calculus is very focused. Calculus, you do derivatives, you do integrals, and the fundamental theorem of calculus connect those, and that's a very tight set of subjects, they all go together. Discrete math here jumps around a lot. The first three units are foundational and then everything else is topical, a little bit of linear algebra, a little bit of graph theory. It just jumps around a lot and you learn a lot of different things.

Speaker #2 (Lisa Vandever):

Cool. That actually helps. I'm sure it helps our students to understand better too. In this course normally and as a program mentor I would place it after calculus, the CD958 course. You did bring up some great points on the difference between the two. Normally I would place discrete math 1 before discrete math 2, but I know they're very different and many students asked me if discrete math 1 is the same as discrete 2, but easier, is that the case?

Speaker #3 (Nina Rupert):

I wouldn't put it like that but they're both courses on discrete math, but discrete math 2 is really just like continuation. You're continuing to jump around to different topics so it's really just a successor in that way. But in some ways it is a little bit harder. We see in the data that students just have a little bit more difficulty with discrete 2 some of the time. It does have some topics that are just more directly related to computer science. That may be fun like there's cryptography is in there, there's algorithms and recursion in there, so like yes and no. They're really just a continuation and less of a prerequisite. Although I always recommend going in that order because of the first three units of discrete 1 are really foundational to discrete math in general. Another thing they have in common is that they just both jump around to so many different topics and there's lots of things to learn, definitions, lots of algorithms from different areas. Memory is something that I struggle with a lot so if you're like me and that's something you want some help with, I always recommend to one use the formula sheet when you're studying. You can take notes on which formulas are there and which formulas aren't so that you can really know what you need to memorize and what you can rely on the formula sheet for when you take that OA. I also like using flashcards. It's simple, it might seem simple, but it really works for me. I always go through them every few days and then topics that I feel super confident on, I put in my easier pile and I review those like once every week or maybe every two weeks. Ask your course instructor for help. We have lots of good tips. We've been around the block with a bunch of students and know different ways to explain things. Don't struggle on your own, call us when things are small and things are easy to handle and not when you have 40 questions and you're so stressed and you have to take the OA soon. Early and often, that's what I say.

Speaker #2 (Lisa Vandever):

That's awesome. I have students who say, well, I don't want to bother my course instructor and I'm like, that's why they're here, bother them.

Speaker #3 (Nina Rupert):

Yes. The bother me, please.

Speaker #2 (Lisa Vandever):

I always tell them that math department is the best department, and you guys are so supportive of our students. But since this require a math course for our computer science department, can you help me better understand how it directly relates to the field and how our students can see how it relates to maybe future jobs?

Speaker #3 (Nina Rupert):

Your computer science degree contains a bunch of certifications and a bunch of technical skills like Java, HTML, computer architecture. You have to know all these really technical things, but another thing employers want are people who can think critically when they came up to something new and I think math is really great for that. In these courses you're learning a set of tools, a bunch of different topics, things that can help, but math it's always helped me think flexibly and creatively, and that's something that employers really want. Both discrete math 1 and discrete math 2 have some topics that are going to relate directly to computer science, like in cryptography, there's algorithms and recursion, set theory Boolean algebra, all of these things are super foundational to computer science and you just need to know them. They're going to help with the other courses too.

Speaker #2 (Lisa Vandever):

Absolutely. This is great explanation of discrete math and its relations. What are some of those key tips to help get our students started? I know you've gone over a few, but do you have any more for us?

Speaker #3 (Nina Rupert):

I love when a student reaches out early, maybe they haven't even engaged with the material at all, they're just saying, hey, I'm about to start your course. This is my name. This is where I'm at. Maybe, I'm worried about this or I have a lot of experience here. I might not call you again, whatever, but it's always nice to hear from you all. I love hearing from students, and building that relationship where there isn't a whole lot of stress like on an OA can be really good. I also really encourage students to take the course at a healthy pace. Don't rush ahead when things are not making much sense because there's those problems they're just going to compound on each other. Make sure you're reviewing lesson exercises that were a little bit of a struggle. If you get stuck on something for more than, say, one study session, if you go back a couple of days later and you're like, yeah, still don't know, hey, call me. Send me an email, that's what I'm here for. You don't need to just struggle alone. I'm sure most of you can get through this on your own, but you don't have to. You can just ask for help if we can talk about it, talking through those concepts when you actually have to express them could just be a good way to get your mind wrapped around it. A lot of students call me with a question and they answer it themselves by talking through it. That's the most important tip, for me is just to connect with us.

Speaker #2 (Lisa Vandever):

Those are some great tips. Thank you, Nina, and I bet everybody is going to be looking forward to the second discrete math podcast with you and I believe Miranda Dyer. Thank you for joining me today. I really appreciate it in helping me get a better understanding and our students of discrete math.

Speaker #3 (Nina Rupert):

Thanks so much for having me. I'm glad we could talk about it and I hope this is helpful for our students listening. Thanks so much.

Speaker #2 (Lisa Vandever):

Take care.

Speaker #1 (Narrator):

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