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Speaker 1: Welcome to the intrinsically disordered podcast, the podcast, where I can learn anything about how it is to say it's college, it's all about course. My name is David. And with me is Justis

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Speaker 2: high and even

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Speaker 1: high, and we are all studying molecular medicine. And I'm on the third year of the bachelor's and uses an event are in the first year of the master's. Yes. And so, yeah, we all took the course. Call it the protein research lab, which I would say really is like, it's about. And so it's the design process, but it's actually also intrinsically disordered course. But before we get to that, let's just talk a little about in practical terms what we did do this course when we had to do. And maybe it's a little about that either.

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Speaker 1: Yeah. So what we did was we worked with intrinsically disordered proteins, which are, you know, proteins with one or more sort of domains and each group in the lab with one specific protein or protein fragment. Our group had a fragment of ubiquitin one. And we had to do was have to express, purify and then biophysical character as a protein. So we did experiments like fluorescence spectroscopy and MRI spectroscopy and SAXES. And then finally, we

have to present what we found by doing a short presentation and also post-recession.

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Speaker 2: What made this called special was that we didn't have any protocols and we weren't given any real instructions in the first place, so we needed to find our way through the course and through the research project that we were carrying out. So this meant this means thinking about what research question to address, what experiments to do and when to do the experiments and especially how to do them. For instance, we needed to choose, of course, what buffers to take for all experiments and where protein was said and also how to make the buffers. And this whole concept is called research integrated teaching, and it differs from the from the popular concept of research based teaching, where there's a predefined way to come up with the results. And in the research, integrated teaching, there's actually there's actually no instructions. No, no predefined way. And also our teachers there weren't really teachers, but more like mentors that supported us doing the whole project. Yeah. David, what do you find challenging, especially about this teaching farming?

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Speaker 1: Well, for me, at least, I think it's very much what you just described that about, there's like the

difference between research based and research integrated teaching that like in the research based because of some of the cost that I've had before. And and as always, you're backed by a textbook and lectures and as a teacher, this kind of thing, I'll tell you what is the right way to go and what's the right interpretation of these results and stuff like that? And in this costume on your own, which is way more like pieces because I actually want to do research, you don't know what you're actually going to get an answer to the questions that you're posing in the textbook. You can always just go to the last page and actually make the solution for for a theoretical exercise. And so I think really not knowing where this will go and like learning to be comfortable with this and being really challenging. But it's also way more like resources in real life, though, it's like something I'm really glad that I learned to be more comfortable with in this course.

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Speaker 1: Oh, yeah, I would say that, um, I was also used to textbook teaching like most students and just getting all the information through lectures and doing your own studying. But this approach of integrated research was definitely new to me and also it had been a long time for me since I was last in the lab. So that was also naturally challenging for me to kind of get back

into it. And also, I found that it was challenging that in Reshad, you usually have more time to just complete a project, but in this case, we had to complete the project in a specific time. And. You can say it was a relatively little time like. Compared to what you usually need, so that was definitely hard.

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Speaker 1: Yeah, so that's feasible. That means that we didn't do shit because of everything and we always like had to do another source of the result that we got on the fly. So. And of course, that's a good thing to do. But do you is actually being critical value? Do the experiments like really every day? In fact, it could take a turn to something else. Another thing that might be have been a little challenging is that there was this like a lot of new concepts to actually grasp, and you had to do a lot of reading during the course and to understand everything, especially that we were working with APIs. And that's not what's best described in textbooks. And so it doesn't say that you need to have some kind of like academic background, some knowledge about whether it's important stuff like that, but is doesn't need to be in the lab. And what do you think about the placement of this course as a as a mass? Of course.

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Speaker 2: Yes. So I think and I I agree with you that

it's it's very important to have some scientific expertise when you enter the course, actually. So I would not recommend it for people in their in their first years, years of the bachelor's. And I think it's it's really well placed in the Masters because you have this expertise and in the Masters, you kind you're trying to. And to get more into the into the actual research. And this is a fantastic course to actually have this this transition. Yeah.

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Speaker 1: And I think it's as you said, it's like the kind of course you want to be doing, especially if you're a master student. But other than that, I would only recommend this course to students who are strictly interested in structural biology. But even the ones who are because I think it's a great way to just learn by actually doing research and just maybe broaden your horizons. And you never know if you might end up actually being more interested in it than you were before.

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Speaker 1: Yeah, but it's a really good like point. Also, the structure biology is maybe also very ideal for making a post like this because you can actually do so with these experiments within the timeframe that you have. I could imagine, like some of the experiments that would take. With longer time than this, and for example, if you had to do all the cloning making

contacts that we had to express and also the thing we want time. So it's also like there's also a challenge when you decide this course is to actually to confine it so that you actually can do something with intercourse. And for that structure that all this really nice actually. OK, so just because you want to mention that we're talking about these academic requirements, but it's really not to say that you have to be an expert in frozen chemistry. I know everything about intrinsically the sort of proteins to start off with this course. Those are also things that you are really going to learn doing this course. So that's really not if I knew from taking it, and I would actually say that that maybe more than these academic courses, because it's it's also just important to be in the like state of mind.

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Speaker 2: Yes, I agree with this. And I think the courses especially nice for people who have really creative minds because it gives you the opportunity to shape your own research project and you don't get this in in other courses that you take in doing your studies and or even though they knew about shortages. Right. If you have a supervisor that and guides you strictly through your theory of passion course, then you cannot be that creative. And also here. So I think this is really what I what I would recommend to

people to really creative  
people to take this course.  
Yeah, yeah, definitely.

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Speaker 1: And just, I would say, people who just want to get out out of their comfort zone who are for the challenge of doing a project like this are definitely people who would like to try something different than the strict line of teaching that we're used to. And yeah, just. Challenge is definitely, definitely the one that comes to mind when it comes to this. Yeah.

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Speaker 1: So yeah, yeah, it's like I can imagine some people also really like to know exactly what they have to know for the exams, like they should have that solution pay of the textbook. And for those few is also going to be really like niacin. They're going to give up a lot. And I learned that from this kind of thing. Yes. Yeah.

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Speaker 2: So David in the beginning has said that the cost was an intrinsically disordered course. And what did you mean by that?

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Speaker 1: So in Switzerland, it's all about proteins. So since that doesn't have this set standing structure like other persons that we know of. And but instead, they have this very dynamic example of different confirmations, and this allows these proteins to do

things that study presence, structure, process, doesn't it? Can you do it? And there was way more interactions with remote interaction partners, and we want different functions. So in that way, these proteins really gain a lot from being disordered in this way and not having a set structure. And I think it's very much the same with this course that that not having this predefined structure really allows us as students to to experience this dynamic like dynamic and we have of doing research and learn from that and do all of these different things, these different experiments at the same time, and they're not really like having a predefined goal for what had to get out of it. But when you would stand at the end of this course, really learn a lot and and you actually see that there is like some really good functions of this, this course in terms of actually preparing you for doing research and the rest of your life. And yeah, that's what of mean.

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Speaker 1: That's true. And I would add to this that even though the work with the other proteins and even though the course is kind of the sort of if you plan to take this close, you definitely should be dissolved because you should make sure you read everything down and just plan ahead and make sure you don't miss writing down any step you might take during this course in the lab and even any thoughts you might



have during the project.  
That important?

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Speaker 1: Keep those  
notebooks out. Yes.

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Speaker 2: Yes. And with  
this? Thanks for listening.  
And see you next time at the  
Intrinsically Disordered  
podcast.