

Exposed: A Deep Dive into the B.S. in Applied Biochemistry and Molecular Biology Major

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Show Notes:

Welcome to the first installment of our new, ongoing series, *Exposed*. Take a deep dive into undergraduate and graduate-level programs at UW-Stout. Hear from instructors and students on their experiences and the stories behind why they chose their program.

This week features an in-depth exploration of the Applied Biochemistry and Molecular Biology (ABMB) program here at UW-Stout. Learn how UW-Stout faculty inspire science-minded students preparing for future careers in genomics, diagnostic, medical, and forensic fields.

Guests:

Dr. Jim Burritt, Program Director, Applied Biochemistry and Molecular Biology

Cami Vinz, Undergraduate Student, Applied Biochemistry and Molecular Biology

Inside Stout is hosted by:

Rachel Hallgrimson and Emily Laird

Transcript:

Speaker 1: 0:08

Hi, everyone. Welcome to inside stout, a UW stout podcast that focuses on the stories of students, faculty, staff, and the entire campus community InsideOUT has a new co-host. Her name is Emily lair . She's sitting right across from me. Hello?

Speaker 2: 0:27

Hi, Emily. Hello. I'm right here. Hello? Um, so yes. Hello. As Rachel just said, my name is Emily lair . Uh , and first and foremost, I am just thrilled to be here and to be joining Rachel and the amazing inside stout team. Now, certainly you will get to know me more through future episodes, but a little snapshot. I work for learning technology services or LTS here on the UW Stok campus. LTS is an incredible team offering support to our faculty, staff, and students with anything learning technology related. So as you can imagine, we stay very busy. Additionally, I am a online graduate student completing the masters of technical and professional communication program right here at stout. It's an awesome program that I'm always thrilled to advocate for. You'll definitely hear me reference the program in future episodes. And

interestingly enough, one thing Rachel and I connected on when we were getting to know one another you years ago are the instructors we've actually both shared here at UW stout .

Speaker 1: 1:26

Exactly. Because I have a bachelor's in professional communication and emerging media, which is like the undergraduate version of Ms . TPC. Yes. And we had a lot of similar professors. Yeah. So that

Speaker 2: 1:39

Was kind of a cool experience because like I said, when were getting to know each other, we would start to kind of name drop these instructors. Yeah. And we had these moments where, you know, we said , oh my gosh, you have this person, you gotta watch this quirk . Or he does this really interesting thing. Or she's like really likes to talk about this certain topic. And it was just really neat to kind of bond over those instructors and the different things that we get to experience here. A , our classes at stout.

Speaker 1: 2:04

Yeah. And one of my favorite things when I first met Emily, when I started my job here, I think I met her within the first month because I had worked for someone in the past that she worked with. That's at a local local business here in town. My gosh . That's from the past . I

Speaker 2: 2:22

Didn't even remember that . That is so

Speaker 1: 2:24

Wild . Yeah. So we just have a history. That's how it all started is like people we know, like people we both have in common is what brought us together. So I, I loved my program and I loved my professors. It's truly the PSM . Family's truly a tiny little family and the students that put in the effort to get to know the professors, I think get the most out of it. And that's not always publicized. I don't know if it's like that for every program, but I'd like to think it is.

Speaker 2: 2:55

I'd like to think it is like , I'd like to think that, you know , from the guests that we're gonna hear today and the guests that we're gonna talk to in the future. Yeah . I like to think that the conversation that you and I have, as far as all the amazing instructors, we had all the amazing experiences we had in our undergraduate and our graduate experience. Right. I think that's gonna be mimicked. I think we're gonna hear a lot of that mimicked across the board.

Speaker 1: 3:17

And that's a good segue full are introducing the new series of episodes that we're going to start today called exposed, which will be a deep dive into the majors that we have here at stout, whether it's a graduate or an undergraduate major, we want to find out about the experience of these students in these programs. What they're learn , what the career opportunities are,

everything we wanna know everything. So today we're welcoming our guests , Dr. Jim Burtz , who is the program director of the applied biochemistry and molecular biology, which we will refer to as a , B B during the episode. Yes . And a student in the program she's actually going to be graduating this spring. Her name is Kimie VI , so let's get to it.

Speaker 2: 4:06

So, Jim, I'm gonna start with you, tell us about the AB B B major and the team of instructors involved.

Speaker 3: 4:12

Oh, it's, it's a pleasure to talk about the, a B B major and the instructor. So a BM B is a biochemistry and molecular biology, and it is, it is a group of instructors. It's a group, a diverse group of instructors. We , uh, there are several of us, about eight or nine. We all have different interests. We all have different backgrounds. We have areas of expertise. We have things we like to teach and different passions. We teach different classes. And so it's really a team of instructors. But the thing that we share is that we all understand something about and appreciate the molecular basis of the life sciences. And that helps us understand things like, for example, how people resist certain kinds of diseases and others seem to fall victim to it. It tells us a little bit about how they made , uh, a, a vaccine for disease within about a year that we had never seen before. But this is a group of people.

Speaker 2: 5:27

It feels very timely. It feels like we're very,

Speaker 1: 5:29

Seems like a very relevant needed. It does group of people on this earth. These are the most

Speaker 2: 5:35

Important people on earth right now.

Speaker 1: 5:38

Plenty of jobs for

Speaker 3: 5:39

Plenty. Yeah. Yeah. There , there really is. And , and , and that is a point that's worth emphasizing that , uh, that, that there are real world problems out there. And , and a pandemic is just one and, and being able to , uh, being able to maintain a healthy environment, the air and the water, and there are so many problems that our society faces and, and not all of them certainly, but some of these can be , uh, can be approached and addressed understanding molecular biology and biochemistry. You had

Speaker 2: 6:12

Just said that , um, you, we work with this great team of instructors and you all kind of have the different passions in that area. What's yours.

Speaker 3: 6:20

My interest is infectious diseases. Okay. And in particular, the , uh, the mechanisms , uh , cellular and molecular that we were , uh, we were born with that help us to , uh, to resist in infections. And so a lot of the classes I've taught in some classes I've developed have really had a lot to do with, with that topic. Great.

Speaker 2: 6:46

How did you fall into that? How did you become passionate about that?

Speaker 3: 6:50

Well, I was about 10 years old. Ah , when I saw , see, I grew up on a , um , I grew up on a farm where, okay . Um, I understood what happened to our cows when they weren't vaccinated and right . And I was passionate about cows. Oh . And then there was the program, the Hawaii five oh episode. Oh, wow. Three dead cows at ma Cappo . It was the most, a fine thing I have ever experienced. It was about an evil scientist that was gonna release a microbe in the environment. And it , it changed me.

Speaker 2: 7:31

This is as you're this 10 year old and you're seeing all this. You're like, how can I become the superhero? Well ,

Speaker 3: 7:37

It , it was , I don't know if I saw myself as a solution to the problem, but you know how, when you fear something, you, you , on one hand, you fear it, but on another hand you're kind of fascinated. Absolutely. Yeah . That was me. That could be a , and that never went cold. That never went cold for me. So , uh , it's been really great at UW stout . I've been given opportunity to develop two classes that really , uh, really relate to this, but this is, this is just one, there are many yeah . Classes that we teach in this major that have to do with this subject. Well,

Speaker 1: 8:12

I wanna hear a little bit more about Cammy and her upbringing to where she's today, because I know a little bit about what you're interested in, what you like to do outside of class and all of that. But when it comes to why you've chosen this area and how you kind of got here, it's not as formative as Tim's experience, I would say, but I think it's still, oh , you don't know that it's still, it's still worth sharing. And , um , I think a lot of students would be able to relate to your experience. I think

Speaker 4: 8:46

My , um, experience with science started my freshman year in high school , um, in my freshman biology class. And that particular teacher focused solely on teaching us about different viruses

and what they did. And I was the only person to get a perfect score on that test. And wow . I think that's like where I realized like, Hmm , maybe science is something I want to pursue. And then that next semester with a different teacher, we were watching the human genome project documentary on VHS. Oh good . Whoa . Yeah. We still had VH did

Speaker 2: 9:28

A wheel in the, okay . Just check in . Yeah. It was big TV, legitimate. Those were the best days you heard those wheel . I was coming down the hallway. Yeah . We just like, yes, thank God. I came to school today

Speaker 4: 9:41

And we watched the human genome project and I'm like, that is what I wanna do. I wanna work on something like that.

Speaker 2: 9:47

That's amazing. That

Speaker 3: 9:49

Is sorry. I have to cut in here. It , it , it , it was very close to a where we did not get to recruit Cammy to UW scout . Oh , that's what the story I was thinking about. And the situation was, was that her, her high school contacted me and said she has, she has a scholarship in engineering and you, your program is not engineering. And all I could think was we will make it engineering because I saw her credentials and I thought, Kim's gotta come here. And so I wrote a letter to her principal, I believe, and said, yes, we do teach engineering and it's called genetic engineering. And so, wow . We have that mic drop .

Speaker 4: 10:36

Yeah . I'm thankful to you for that. It , it was

Speaker 3: 10:40

Thats amazing. It was our , it was our pleasure. And still is

Speaker 2: 10:44

Jim let's fall back over to you. What can students do with this major?

Speaker 3: 10:48

So there, there are a number of , uh, possibilities that , um, really are worth considering , uh , for our students. So the, the possibility that students might work in areas of , uh, drug development and pharmaceuticals, sometimes veterinary or medical health sciences, there are also a number of industrial applications , uh, including the ferment, the large fermenters that are used to produce , uh , a number of important , um, products, biological products that are utilized and more and more , uh, of our therapeutics are called biologicals. And those are actually, they're not just

chemical, they're actually made by living systems. And so this all really gets back to what I was talking about the molecular basis. Um, those are just some of the examples, but , uh, areas in research , um, areas in teaching , uh, the allied and medical health professions. These are examples, but I really do want to emphasize the importance of, of the , uh, the molecules that, that provide this background. And honestly, it's something without a good back in high school , a lot of high schools , a lot of high school students, even though they're very well trained, don't have an appreciation for molecular biology, I think Cammy did. Uh , and it , it , it shows how that kind of early instructions really important.

Speaker 2: 12:27

Absolutely. So Cammy , based on what Jim just described, where do you see yourself going with this major?

Speaker 4: 12:34

Um, I definitely plan on going into something like virology or immunology, but more on the molecular side than anything

Speaker 2: 12:43

Else. So what pulls you toward virology?

Speaker 4: 12:46

Definitely gym's classes. Yeah. Um , I don't think I would've had as big of an interest if I hadn't taken his classes and just really developed a passion while learning about those topics. Sure.

Speaker 2: 13:00

And for myself and any undergraduates or people not within your field, what is virology?

Speaker 4: 13:06

It is the study of

Speaker 2: 13:08

Viruses. All right . They are

Speaker 4: 13:11

Probably some of the most complex things out there, especially their molecular mechanisms. A lot of them aren't known until it needed to be known. Very

Speaker 1: 13:22

Cool. Very cool . That just sounds like a very, I don't wanna say the word scary, you know, it sounds like a , a field that you're just waiting or something. Is that kind of what it's like? Like, you're just like you, you know, what you would do if something pops up, but you're just kind of waiting for something to come up. Is that what it's

Speaker 4: 13:44

Like? Well, with the current pandemic , um , SARS by itself, MES they're both being studied for the last 20 years and they knew there was other coronaviruses out the air and they're just waiting until they had funding and the need to continue

Speaker 3: 14:00

Researching. I , I would throw in that , uh , actually there are many existing viral diseases for which we really have not adequately addressed. Uh , for example, there's a virus that is a leading cause of birth defect in this country. It's called cyto megalovirus. We don't have a vaccine for that. Sure. We don't even have good ways of preventing it. And the, the aids virus has just continued to, to deny some of our very best research in, in ways of , uh , immunization and prevention and treatment. Although we've made a lot of progress in HIV . There's no question I ,

Speaker 2: 14:36

So , and we've really gone down the , the path of virology. There's a lot that students can do with this major. So let's kind of transition back to that. So Jim, how will your students use the skills they learn in the real world problem solving after stout?

Speaker 3: 14:52

So hopefully the students , uh , finishing their program in a BM B will leave with a toolbox sure of methods , uh, either that they can go into the lab and do themselves because they did it at stout, or they can have , uh , they can of good conversations with others who do these methods, even though they might not have done, 'em all they understand the basis of these methods. And so I would say , uh, AB B provides , uh , provides a set of , uh, of, of tools to address some of these problems that I talked about. So in the application of , uh, some of these societal problems in some of these career categories, they will, they will use methods like, like H P and NR and Western blots and Alysis and those kind of things. And, and, and in knowing how to do that , uh, they will be able to address some of the current and future problems , uh, that our society faces

Speaker 1: 16:00

Cammy we're nodding during that list of words that I can't there were, I can't repeat, nor do I know what

Speaker 2: 16:07

They mean. There were

Speaker 4: 16:08

Letters H P C is high performance, liquid Chrome photography .

Speaker 2: 16:13

And now break that down for me a little bit further. Um ,

Speaker 4: 16:18

Basically you send , um , a mixture of different molecules through this thing called a column, and you have different types of columns. And basically that column will pick up different molecules based off the type of column and from you get , um , a nice graph from which after learning and looking at different resources, you can pick out what each molecule is that creates a peak. So from a peak, you can identify a molecule using H P .

Speaker 2: 16:47

So this is all types of research that you have learned for I'm being here at stone. Yes, Jim, you were just kind of talking about how, you know, we were positioning students to go into the field and be ready to take on these, and then you dropped a ton of incredible acronyms and different letters , um , and then came elaborated. And that's fantastic, but let's go back to this notion of research. So you're really setting up students to be able to enter the work and be like masters of research. Would you say that?

Speaker 3: 17:18

Well, we would, we would like to say that , um, you know, research is something that you can do your whole life and you can have accomplishments and failures at , but the important thing about research in it really, it takes doing research to, to really appreciate what it is. Um, I think that hopefully, and research really is an embedded component of the, a B B program. And so we really, we really work to create opportunities for students to do, to re research. But one of the, one of the greatest things about it is that when a student realizes that they are attempting to answer a question that that may never have been answered. Uh, and that's not that hard to find a question like that, that they be begin to develop passion for this learning. And they know that the things that they learn are things that perhaps no one else knows, and that is empowering. So to give them a taste of this, to show them what research is and how, how it can be so self sustain , sustaining , uh, and I wouldn't say addicting, but, but, but once the students really , uh, really experience that it can really change their, their path. Wow . And , and , and , and I would say in a , in a very good way, that's , that's

Speaker 2: 18:43

Impressive. Cammy , speak to that a little bit.

Speaker 4: 18:45

Yeah. Yeah, definitely. I think I found my home here stout within , um, the lactose fermentation area that I've just been dedicated to that my last four years paid unpaid for class, not for class, I've just continued to work on it because it's something I enjoy and have a passion about.

Speaker 2: 19:07

Sure. So tell us a little bit about lactose fermentation

Speaker 4: 19:11

In Wisconsin. We tend to make a lot of cheese, and from that cheese, there's a BI product called cheese whey. And normally this cheese whey would just either be turned into, back into animal feed or into protein powder, but there's still a lot that just goes unused is just, and is just sent to the, the landfills. Um, so if we were to take, be able to take that cheese whey and ferment it into ethanol, whether consumable or not is the project that I've sort of been working on and I've worked on like two different aspects of looking at that question,

Speaker 2: 19:48

How did you get into that?

Speaker 4: 19:50

So there's this club called the American society for biochemistry and molecular biology. Right.

Speaker 2: 19:57

Um, it's a club I probably would be to get into. So anyone's exclusive. Oh,

Speaker 4: 20:02

Oh. As the president, um, currently anyone's work Emily

Speaker 2: 20:06

In, Hey, ummy

Speaker 4: 20:09

My freshman year. Um, I found out about this club and one of their recruitment factors is we'll help you get into research. And so I went to all their meetings and, um, there, they helped me figure out how to talk to a professor who was interested in doing research with, and set up a summer internship almost and do research with. And from there, I've just continued to, um, make connections with other professors and just keep going from there. So I really wanted to ask this question and, uh, it is, if you could teach us a lesson in five minutes or under give it to us. All right. Have you guys heard about the, um, heart transplant that has happened with a pig recently? Yes, I

Speaker 2: 21:02

Actually have. This is, so my husband stays up on anything neurodynamics and that fell on the category this week, last week, actually.

Speaker 4: 21:11

Yeah. So those are, um, Xeno, transplantations, um, and they're really hopefully going to be useful because right now there's a lack of human organs in a sense that people are on transplant list for years, maybe even longer and never get. And, um, but there comes the question of why would a transplant in the first place, or even a pig transplant, um, be hard, like why was this needed? And that's because of the, um, immune response or a rejection of an organ from the

human body, especially when you think of a pig, that's gonna be rejected by a human. Um , so the fact that they did this was kind of crazy. Yeah.

Speaker 2: 21:56

And now that came and correct me if I'm wrong, but didn't that come from, that came from the study of proteins,

Speaker 4: 22:02

Little bit different. This more has to do with gene editing. So CRISPR Caine . Oh

Speaker 2: 22:07

Yeah . Thats more fascinating to me. Uh , let's transition into CRISPR. Yeah. Talk about that a little bit, cuz I think that's been a hot topic, especially with genetics lately and I'm interested.

Speaker 4: 22:18

Yeah. The , um, two women who discovered CRISPR CAS nine this last year just won the Nobel prize for it. Wow . Um , one was an American Jennifer Duna , but bay basically CRISPR CAS nine is this molecular tool that can be used in a various different ways , um, that can change or cut out parts of DNA or even RNA , um , by the use of just a singular guide RNA, that's only 20 bases long, which is really short in the scheme of RNA. Um, but how they used it in this , um, Zenot transplantation was they had the pig heart , uh , grow up in a pig. But in that pig they edited 10 different genes, whether knocking out certain genes, meaning certain genes in the pigs and the pig was , um , removed. And they also used it to add human genes into the pig so that when they transplanted the heart, it would accept into the human body and there wouldn't be rejection. How do they add in human genes? Like when it's in utero or how does that? I don't understand. Um, I'm not sure this particular Case's blew my mind when they did it. Um, but I'm sure it was , um, before the pig was , um , born, so right . So

Speaker 2: 23:41

What other type of CRISPR gene editing are you aware

Speaker 4: 23:44

Of? Well, we do some here at stout. Wow . We do

Speaker 2: 23:49

What,

Speaker 4: 23:49

Yeah. It's um , quite an amazing tool and it's not just used for like , um, large things like transplants it's also can just be used for , um , in vitro science , which just means like in test tube. Um, so one of the previous projects I've done in a class was we , um , had a zebra, zebra fish

genome where we , um, knocked out a certain gene of our choice in the , um , zebra fish and tried to see what would happen particularly wait.

Speaker 2: 24:22

Okay. When you say you knocked out a certain gene in the zebra fish , how do you do

Speaker 4: 24:28

That? So there's online tools such as Benchling , um, and also , um , NCBI has a huge range of tools , um, where you can go on there and bring up a genome of a human or a zebra fish and you can look and see all the ASTs CS GS and all the listings of genes. Ah , and from there you can choose , um, what gene you wanna knock out by using a guide RNA. So basically that guide RNA exactly matches the genes , um, a use Ts and CS nucleotides that you want, it's a complimentary to them . So then that's just on the computer and you can run , um , sequences online simulations to see if that's actually gonna work or if it's gonna knock out somewhere completely else because you know, millions of base pairs long that can hit anywhere . Or so then when you transfer into lab, you hopefully have a really dedicated guide RNA that you know is gonna work. Um, you actually use CRISPR CAS nine and you insert that into , um , your test tube with your genome and run a PCR and see if you can actually knock out that gene. Wow.

Speaker 3: 25:46

Cammy , you should mention in the two strains of yeast that you developed that we use in some of the flow cytometry, teaching

Speaker 4: 25:56

Labs. Yeah. Those same yeast , um, contained a GFP and an , um, RFP , um , which stands for green fluorescent protein and red flues , Russ protein , um , respectively named , um , Venus and Ruby. And I put them into geese using CRISPR CAS nine type system. And I made those up specifically for , um , Jim's class. Um , so he doesn't have to use aspergillus that's anymore . Yeah.

Speaker 2: 26:28

So you created Venus

Speaker 4: 26:29

And Ruby? Um, no, it was a like molecular cookbook tool kit . Wow. Um , thing that one of , uh , a different professor had, and it was kind of my intro into the lab that was like the first ever research project I

Speaker 3: 26:45

Did, but to be fair, can we produce these two strains of yeast that presumably had never been produced before and you can propagate them endlessly and use them as tools in teaching labs and they they're very valuable. Wow. And Kimmy just went in the lab and did it like, oh , like that was very, very cool. Yeah. And fast.

Speaker 4: 27:13

Oh yeah. It was

Speaker 2: 27:14

Fast. And what's so exciting about that is what you just mentioned, Jim and Kimmy, what you've been talking about is just the hands on aspect, you know, you said Kimmy just went to the lab, she did this and you you've just talked Cammy all about how you've really gotten hands on with all the equipment you're developing geese. So talk to me a little bit about that HandsOn perspective, Jim, maybe from you as the instructor perspective and then Cammy, I'd like to hear from you just from the student perspective of having such a HandsOn experience.

Speaker 3: 27:37

I would say this just really briefly, and that is you can take a group of bright and talented students into the lab and talk to 'em and just put them to sleep. But wow, if you, if you get a pipette in their hand and make clear a molecular goal, then all you need to do is get out of their way because they know what to do. They've once they've, uh, kind of learned the ropes and it's really impressive to see.

Speaker 4: 28:11

Yeah. I think one thing, um, my classmates and I could all agree on is our favorite part of this program is how much lab time we get, how much hands on work we get. It's not a lot of class time compared to other schools. It's almost always hand on what you're learning in class is going to apply to the lab and the other way around too. It's the best thing about this program.

Speaker 1: 28:34

Jim, I wanted to ask you about your philosophy of teaching, because it sounds like you just like to get out of the way you

Speaker 2: 28:43

Wanna get out of the way. I

Speaker 1: 28:45

So inspire students, you fight for students and their success. So I wanna hear what, what you'd say your

Speaker 3: 28:52

Philosophy of teaching is, well, I, I would say this and, and, and this is not just me that I'm speaking for all the instructors at stout. It, it is, it is, it is really, uh, a, we feel a privilege to be able to, to work with, with the students that we do. And, um, it's all about getting them interested if you can, if you can, if you can, just, if you can get them started and, and show them where passion can come from this learning, then it, it, it makes teaching just fun for everyone.

Speaker 2: 29:28

That's great. So in that same sphere of thought, if I am a junior, let's say in high school, and I'm interested in this type of program, cuz I really want that hands on experience. How, how could I prepare myself

Speaker 1: 29:46

Or something to compliment the question? Yeah . How would that person know that this is the right major for them?

Speaker 4: 29:54

Yeah. Um, you , I don't think students, particularly for this program, like we really need to worry too much about preparing or not preparing. Um, I hadn't even taken like AP bio , um, and this program was just the fit for me. I think learning about like the different types of fields there are so like biochemistry and molecular biology, what those really entail molecular biology being the study of like large , um , molecules, such as DNA, RNA biochemistry being the study of like smaller molecules, like enzymes. So knowing if those are the types of things you wanna continue your research in, or if it's more life sciences, like you just want to know more about maybe specifically like environments and the science behind that versus the actual molecular biochemistry stuff that's going on.

Speaker 1: 31:00

And this major is part of our pre-health pathways. Right. So where could that take

Speaker 4: 31:08

A student? Definitely. We've had , um, students that, that have graduated that I've known, who've gone on to neuroscience , um, PA school , um, straight into working for Mayo clinic , um, dental, like this major can take you pretty much anywhere in the medical field that you wanna go,

Speaker 2: 31:28

Well , buckle up buckle . You're going all over. Yeah. Tammy , how has this program changed you?

Speaker 4: 31:36

I think it has definitely confirmed my passion for science. Um, any other major, I think I'd be a little bit lost as to where I want to be like might touch on something. But um , this particular major has really like confirmed that this is a type of science I wanna be doing and where I wanna continue on.

Speaker 2: 31:58

So your teaching in this program, has there ever been an experience other than, of course Cammy's brilliance because really it's impressive where a student has just kind of blown your mind.

Speaker 3: 32:10

Yes. So tell me about it, which day it happened . It happens all the time, but it never happened more than it did this Wednesday when it wasn't one student, it was a whole class and talk about wind up the clock and then get out of the way, show them what to do. It's amazing to see our students engage science and work together. And when they do that, no one can lose. And I've seen that over and over and over at stout from our stout students. It's a lot of fun to see.

Speaker 2: 32:58

And that keeps you going in this program, right? It's so

Speaker 3: 33:02

Fun. Yeah.

Speaker 2: 33:04

Ken ,

Speaker 1: 33:04

You're the only student in the room, but like even Emily and I were talking after we talked to Jim about the podcast and we are just talking about our former student employees and how they make working here, like the best we a thousand times better, the best it makes it completely worth all of the, like other, the meetings that go sour or the stressful days. And I just come back and I talk with my students and I hear all their awesome ideas and they just lift my

Speaker 2: 33:34

Mood. And one thing that Cammy , you're such a great representation of a stout student, you , um , the one thing that I can say about stout students and students that, you know, I've worked with students, Rachel's worked with, you guys have an agenda when you show up on this campus, it is not, it is really incredible at 18. I didn't show up on campus with an agenda. I was like, I'm at college, but aout student, Hey , get on campus. And they're like, I'm, I'm here to do this. I'm gonna get an internship there. And then I'm gonna work here and it's kind of a get outta my way world. Here I come. And I get that vibe from you. Definitely Cammy . Yeah.

Speaker 4: 34:11

I definitely would say I've had that agenda, but I haven't necessarily followed that agenda. And I think that's a lot to do. Um, with being here, I've changed my mind a million times about what I wanna do after I graduate , um, where I'm gonna do it. Um, even internship because of the pandemic that completely got flipped around and everything. So I definitely came in here with an agenda. And even though I'm not leaving, following that, I think I definitely found my right

Speaker 2: 34:47

Path and , and not to be the bare bad news. Right. Yeah. But that , but life is life. So tell me about maybe some of the challenges you encountered during this program and how you, how you got through them. So

Speaker 4: 34:59

Stout is a very small school on the grand scheme of things. So I think one of the biggest complaints that , um, any student at stout or even in a major is gonna find is class scheduling. It can be incredibly hard to get the classes you want because there's only one section offered. That's just kind of how it is. But since we're at stout, thankfully we have great people like Jim who will help figure out the right path for you, help substitute classes if needed, figure out a better class for you to take, to get you to that degree and get you that education that you actually want.

Speaker 2: 35:37

It's amazing. So looking forward to the future, you're just about to graduate here. We got a few months left. Yep . Where are you going after graduation? What are you doing?

Speaker 4: 35:48

I'm hoping to get a job in , um , some university somewhere probably studying ology or immunology. Wow.

Speaker 1: 35:56

Jim, if a high school student's listening to this and they're like, this sounds really cool. What are their next

Speaker 3: 36:06

Steps? Oh yeah. That's a good question. So , uh, you know, the problem and it certainly would've been the case when I was in high school, the, the term biochemistry and molecular biology means nothing. And so how do you even relate to a program? A whole major that has that title? I think it's really hard. So here's what I would say. Are you curious, are you interested in how things work? Um, you , uh, take things apart when you were young to find out how they operate. Do you , uh, do you like to look closer at, at things and learn more and open some of those doors about some of the , uh, some of the systems that catch your , the things that make you observe things that you can't explain? So explore curiosity, that's where it begins and

Speaker 1: 37:08

Perhaps schedule a tour as far as style goes. I mean, getting , getting on campus

Speaker 3: 37:14

And it is so great if you can get a student on campus and when I have a student come to tour , uh , and, and I get to talk to 'em because they, they designate a , B , B is a possibility. I say, come right into my classroom and come right into my lab. And I'll pair you with one of my students and I'll tell my students to talk to you. And, and you'll have some wanted to ask questions. Like,

what is it like to be a student here then , uh, then they can begin to get answers. I think that are really helpful. Wow. So

Speaker 2: 37:48

If someone's interested, they can really get a hands on the whole experience, get thrown right in. Yeah . Like you're enrolled in the class right now. If we can

Speaker 3: 37:57

To do with it, we'll get 'em right in. Wow . That's very cool. It doesn't always work that way because they have schedules and other things, but sure . But I do when I can. That's I'm not the only one.

Speaker 2: 38:08

Well, that's amazing. That's really amazing. So closing thoughts,

Speaker 4: 38:14

This program can definitely shape your life shape, where you're going in the future. Maybe even rearrange it and , um , open your eyes to a whole different amount of possibilities out there in science and just where you can go with it is pretty much unlimited.

Speaker 3: 38:32

One thing I would add to that, and I really appreciate Cammy saying that is that it's the power of advice and that students who are exploring possibilities should really, really take advantage when possible for , uh, for receiving advice from other people who have some background. The great thing about it, you can do with you with it , what you want. You can follow it, you can look into it or you, you can ignore it. But I think for me, one of the most transformational times in my career , uh, was when I was working as a medical technologist in a hospital lab. And I really liked that. Uh, but I recognized I really like teaching. And so I went to a university and talked to a , a , a , a , a professor there and said , um, I'm thinking of getting my master's degree. And he said , uh , no, you should think about getting a PhD. And, and because if you have a PhD, you'll have so much more flexibility. And honestly, I never ever would've considered that, but that changed my life for the better. Um, and it opened up so many doors. So ask people for advice. It is so important.

Speaker 2: 39:52

That's great advice. That is really great advice. Great closing

Speaker 1: 39:55

Advice. Yeah. Thank you both for being on the episode, this was very enlightening and inspiring. Thank you.

Speaker 3: 40:04

Did I tell you you'd like Cammy, you

Speaker 2: 40:06

Did. I did. You did. And we do. You do yes.

Speaker 1: 40:09

Lifelong friends now, I think, yes. Awesome.

Speaker 2: 40:12

You have honestly, like motivated me to want to , to go into this. You and I have a whole nother trajectory and fields in my life, but I'm like, you know what, given the opportunity, I might come back to molecular biology as like something in my back pocket here. It just sounds so fascinating. You make it sound so smart, but like accessible, you know, so I think that's, what's a lot of ,

Speaker 4: 40:37

Um, our classes , um , specifically the classes designated a , B , B our professors teach us how to communicate based on who we're talking to. So if we're talking science, we have to know our audience. Um, whether we're talking to someone younger or older, or at the same experience level, or higher experience level or lower , um, how to effectively communicate the science we're talking about.

Speaker 2: 41:05

Well, I think you did an excellent job of that today. Good . Wow . So that was really an amazing look inside of a program that I, myself didn't have as much context in. Uh , but now I feel like I'm on a interested . Um , and if you are interested in the bachelor of science in applied biochemistry and molecular biology program here at UW stout , please visit our website@uwstout.edu . You can find more information about the program under academics, undergraduate degrees, or select admissions and aid for information on how to apply. Rachel, tell our listeners where they can find us.

Speaker 1: 41:43

Yeah. If listeners have any good topics for future episodes, or you'd just like to connect with us, follow us on social media. On Instagram, you can find us at UW stout pics on Twitter at UW stout, and by searching university of Wisconsin, stout on Facebook and LinkedIn, you can subscribe to inside stout on apple podcasts, Spotify, and Google podcasts. And we'll see you next time when we share even more stories that go inside stout.