# 41. Jamie Newman: Reframing Research

**Tonya Oaks Smith**
So hey, y'all welcome to Beyond 1894, Louisiana Tech University's podcast. We're joined here today by Dr. Jamie Newman, who is Associate Dean for Research and Graduate Studies in the College of Applied and natural sciences. Thanks for being with us today, Jamie.

**Jamie Newman**
Yeah, thanks for having me.

**Tonya Oaks Smith**
So Jamie is a biology professor to start off with, and she works with both undergraduate and graduate students to do research. And so Jamie, can you tell us a little bit about the research that your undergraduate students have been doing? And then let's talk about graduate students?

**Jamie Newman**
Sure, yeah. And actually, they both do very similar types of research. And they really work collaboratively within the lab. So when I got to Louisiana Tech, my background was in stem cell biology. And so the lab for the past nine years has been studying human adult stem cells and looking at factors that contribute to determining cell state. So does a stem cell stay a stem cell? Or does it become a bone cell or a fat cell or a muscle cell? And what factors contribute to that? Since the COVID, 19 pandemic, we started looking into aspects of COVID-19 within the community. And so I have students who are collecting wastewater from Reston and looking for concentration of virus within the wastewater in our community. And then I also have students engaged in sequencing patient samples that we collect from within the community to track variants of COVID.

**Tonya Oaks Smith**
So what So let's go back to stem cells, because I think one of and we've talked about this before, one of the common thoughts that a lot of individuals have is that stem cells are associated with fetal tissue, and that's not the case. So

**Jamie Newman**
yeah, sure. So there are different types of stem cells. And there is often confusion because we just say stem cells, and we don't always define where they come from. But adults have stem cells in nearly every tissue of their body, and we use fat derived stem cells, so many of us have plenty of fat we'd like to have removed and within that those fat depots are adipose derived stem cells. And those stem cells are in your body to aid in wound repair, and to help you to heal and to make more fat tissue, as is necessary. And so we can get those cells, we purchased them from a collaborator in New Orleans. And we can use those cells. And there's not really ethical concern with that those are derived from humans, adults who give informed consent, there's bone marrow stem cells, also available for research studies, those are the stem cells that make bone marrow transplant successful for people with leukemia. There are embryonic stem cells. We don't use those here. And there's a lot of policy and regulation to make

sure that those are used safely and responsibly as well. But yeah, I think there is often a lot of confusion about what those cells are, where they come from, how they're being used.

**Tonya Oaks Smith**
So let's talk about the COVID research that y'all have been doing. I think that, you know, for the past two years, we have had COVID, at the front of our brains. And one great thing about your lab is that you took that overwhelming concern that we had, and you've found a way to create a learning experience for our students. So the wastewater thanks, spline, that T shirt.

**Jamie Newman**
Yeah, so the wastewater project was really interesting, because My lab studies gene expression, which is how DNA goes to RNA and how those genes are transcribed, we have the equipment in the lab to be able to look at viral genomes and look at the RNA that makes up the SARS cov T virus. So when we saw in the news that other universities can and communities were looking at wastewater to see how much virus was in their community, this is a way to detect it, when we might not have had enough testing. This was kind of early in the pandemic. We had the equipment and the resources and skills to be able to do that. And so we got involved in that working with KC Jackson in the city to get samples weekly from him, and then be able to process those. And that was really work. That was graduate students and undergraduates who, thankfully, when I asked them to do something, they just say yes, um, they think I provide them a lot of opportunity, and they see it as opportunity. So they went from their stem cell work into this new field along with me, just to try to do that. And so we've been doing that for a little over a year now.

**Tonya Oaks Smith**
So that is also tagged to that. The interest that y'all have currently with finding the variance with with COVID Yeah,

**Jamie Newman**
yeah, so really, our interest is in tracking being part of the tracking of, of the virus in our community. So before we really got engaged in both wastewater testing and then got involved in this Rockefeller accelerator project, we Shreveport and Grambling State University, North Louisiana wasn't on the map for very much three, four, it was doing quite a bit of sequencing, South Louisiana was doing a lot of sequencing and wastewater testing. But where we are our community and communities like ours weren't getting a lot of attention, because we don't have the resources to do that as quickly, efficiently as the bigger cities did. And so this really gave us an opportunity to be part of that. And since we've been part of that collaborative project, we've actually contributed about 200 sequences to the to the database of SARS, cov, two genomes, and we've been able to track when omachron dropped in our sorry, when delta dropped in our community and omachron started to rise within the community. And right now, we're not seeing any but we're prepared to begin, you know, as we get samples, if we get samples again, to track those and see how we follow and take any measures we can to prevent further spread.

**Tonya Oaks Smith**

So, so undergraduate research, and this is this is a thing that I feel strongly about that, that when undergraduates can do research, whether they are majoring in English, or they're majoring in biology or engineering. And research can take on several, you know, research or creative projects, things like that. Those, those opportunities are important for students because they begin to understand the concrete impacts that their work can make on our community. And they start looking at research or future creative work as being possible. Tell us about the journey that some of your students have have makes no, you start with undergraduates.

**Jamie Newman**
Yeah, yeah. Yeah, I agree. I think that the application of what they learn in the classroom is so important to their education, it really is a central part of their education. And we all know that we learn better when we when we do when we practice more than just reading in a book. And so research, whether it's in the lab or in the library, or in the community gives students that opportunity to take what they've learned in the classroom and apply it. So with my students, I, when someone comes to ask me about undergraduate research, in joining my lab, we have a chat about what my lab does the type of work we do and how I manage the group, then I make sure that they meet current students in the lab, because I can tell them one thing, but I, they need to hear it from a student, what does it actually like to work with Dr. Newman, you know, I think it's great, they have to tell him how it actually is. Um, and so they'll meet with students in the group. And then if they're still interested, we'll come back. And they will start to work closely with a few students in the lab learning basic techniques, seeing what it's like to go in there every day and do some of the bench work. It's not quite like it looks in on TV, you know, it's not blue lights and fluorescence all the time sometimes. And then if they're enjoying that, then they get really engaged in the project, I expect them to be there a couple hours a week in the beginning, and I watched, some of them get really engaged, and I see them, they're all the time and they start to seize every opportunity, I'll send an email out about a summer program or grant opportunity or a conference that we can do. And that some of them will just start writing back to all of them. And I can watch it really transforming their college experience. They become part of this lab family that we have. And then I see them start to sometimes question what they thought they were going to do when they grew up, right. So so many of us who like biology, go to college, myself included thinking we will become doctors, because that's what we've seen our whole life is, if you like science, you like biology, you've become something in the medical profession. I got engaged in undergraduate research, and it changed my life. And I see that in some of these students, and I see them start to have questions about if medic medicine was the right track for them, and not sure how to deal with that. And so I started to have a lot of conversations and I introduced them to other people who went through the same journey at Louisiana Tech that they're going through and now are in either graduate programs or medical school or dental school or vet school and how they navigated that once they started to kind of question their own path. And so it's really fun for me to watch that. I feel for them as they struggle with the what I thought I was going to do and what I really want to do. But I think that's such an important part of being here is that exposure to all the things that are possible and finding what it is they're most passionate about.

**Tonya Oaks Smith**
So you touched a little bit just then on the The capacity that we as faculty and staff in this learning community that we have to serve as mentors for our for our students and to set up co curricular and

extracurricular opportunities that that help our students be best prepared to make a positive contribution on their, their communities in their careers. Now you're your advisor for two organizations that try to work on equity and inclusion and diversity within STEM. Tell us about those.

**Jamie Newman**
Yeah, so I am the faculty advisor for maps, which is the minority association of pre medical students, and also the faculty advisor for Student Organization of Women in STEM. I feel really honored to be to have been asked to be the faculty advisor for both of those groups, because I think what they do is so important, and I want to be an advocate for all these students who who want to change what STEM looks like what medicine looks like, in our in our brave enough to do that, you know, so with both organizations, they they include me and stuff, but they do so much without me that is, is so amazing. They bring in guest speakers, they bring in a Tech alum who are doing great things in their disciplines, the women in STEM group organized a mental health panel this weekend, also a women's health panel, the mental health with our counseling services here at Tech and the Women's Health panel with Dr. privato in nursing, and then nurse practitioners from within the community. So they just see this need within their own community of students. And I think I'm just a resource to bounce the ideas off of sometimes I throw out some people they could reach out to or help them to do that. But I just think it's awesome that they have they see the need, they've created something, and there's been such buy in from their peers, that I think it's really going to have a good impact.

**Tonya Oaks Smith**
Good, good. And I know that we see a lot of positive things that that those organizations are doing like this this week. They're doing a women in STEM kind of week of activities that some are focused on, you know, the learning part, and some are focused on the fun part. And I think that that's good. It's also a very interdisciplinary opportunity because you have engineering students mixed up with biology students mixed up with education students. And I know I've talked to Dr. Laura Bostic about this, how, in order to strengthen the experiences of these students, you need to put them in the orbit of students who may not be doing the exact same thing, but they're doing similar. Yeah, yeah. And I think that's the idea of interdisciplinary work, right? Yes. So you're also involved with VISTA which is stands for remind me I just Vista,

**Jamie Newman**
visual integration of science through art.

**Tonya Oaks Smith**
So it is also tied to a degree program, which is the minor in

**Jamie Newman**
Yeah, there's two minors, a minor in pre medical illustration and a minor in scientific visualization.

**Tonya Oaks Smith**
And tell us how that got started. Yeah, so

**Jamie Newman**

Dr. Caldorera-Moore and I over in biomedical engineering. We collaborate a lot on tissue engineering projects, the nother interdisciplinary opportunity for our students, right stem cells and biomaterials and how they interact. And so we were writing a book chapter on tissue engineering and needed some illustration. So I was fairly new here reached out to a couple art professors and Professor Bustamante wrote back and was like, I don't know the words you're using. I don't know what a stem cell is, but I will try. So we met and we learned a lot working together the three of us and so in doing that, and Nick creating illustrations for our book chapter, we thought, Well, this was cool. And Nick got his artwork in a book and wouldn't it be cool if students got a chance to do this too? So we got together, Nick Tada digital painting class students created scientific visualizations in their in their last assignment for the class. One digital painting class grew to two digital paint painting classes each year, grew to one minor in pre medical illustration, then two minors, a VISTA center with a lab and a print lab now we call it that has a poster printer and other high resolution printers. We have over a dozen students currently pursuing one of the two minors. We've been able to work with the community students have had their artwork published. It's just been really an amazing journey that started about seven and a half years ago just after my son was born. That's how I keep track Our first meeting was in my living room while I was on maternity leave.

**Tonya Oaks Smith**
Well, the the and it's funny, because when I first met you and Nick and talked about this, I was like, Oh, I like that piece of art. Now a tiny bathroom. So yeah. Which is interesting. It's it's a picture of a heart, like a real picture of a heart, not just a cartoony heart. Yeah, yeah. Real heart. Yeah. And, and one of the things that I think is pretty cool about this is that it provides another opportunity for our art students to you know, I know that parents probably when their kids come home and say, I'm majoring in art, that that might be a little difficult thing for them, because they have a perception of what an artist is. And this is another opportunity for artists, it also provides an opportunity for for medical statements, right?

**Jamie Newman**
It's been so interesting to see the students that come into the program. Originally, it was a lot of art students who saw that they could take something they were doing, and it had this application, and they were engaging with healthcare workers in the community and creating posters, and it was really a meaningful experience. And then we'd get some students who were pursuing a science going to medical school, but had this great art talent and just never knew that they could do anything with it other than have it be a hobby. And so we've had a few art students or students come through now who are in medical school or going to medical school, and they tell us in the interview, this is one of the things that really stands out about them. And something people want to ask them about, to be able to communicate complex topics visually is a tremendous skill to have. So it's been really fun to watch these students find that they can, they don't have to choose, they don't have to choose art or science, there's a way to combine these two passions into one thing.

**Tonya Oaks Smith**
It it also is very helpful when we talk about providing access to health care, positive healthcare outcomes, and equity for members of our community who might not be as equipped to understand diagnosis or treatment or anything like that. You know, doctors who can speak to you know, yeah, yeah, I mean, doctors who can speak to you as a human being are so much more valuable.

**Jamie Newman**
Yeah, yeah. And to see yourself represented in the posters that hang in a doctor's office, that's probably one of our our biggest, biggest successes with VISTA is because the students create artwork for community clients, it is really tailored to the community. So one of Nick's favorite examples is this poster student did of what a stroke looks like. And before the student did the work, the posters in the health hut were our, our community client is where of middle aged white women who looked really healthy, and those aren't the people who go to the health hut. And that's not what a stroke looks like. So this student illustrated an African American male, that looks like someone in the community with symptoms of a stroke on his face. And it is the patient's favorite poster in there, because it looks like them, they see themselves it has an impact, because they're now identify with it. Whereas before, it was something that was just provided to the clinic, they hung it up, it had great information. But it didn't resonate with the people who walked into that room. And so for us to be able to do that is really powerful. And actually, our students have the opportunity. Beginning in August, we're going to have their work on display at the Louise, Louisiana Art and Science Museum in Baton Rouge, where we'll have a section on community health that will have a lot of these community illustrations that we did. Well,

**Tonya Oaks Smith**
I think that it that just illustrates the transformational power of higher education. And not just for the students in the programs, but for the people that they are touching that they will touch for the rest of their lives, I guess. And it also brings me to I think one of your favorite areas to talk about. I know we've talked about it a lot, which is communication that's based in science and how scientific communication is so important to help people understand I think, especially right now, there, there is misinformation, there is accurate information, and then how do we help people understand science better? Can you talk about scientific

**Jamie Newman**
communication? Yeah, I can try. I mean, I'm still I'm still learning that too, and you certainly helped me do that. Better. I think it's difficult Because as, as scientists, we're trained to talk to our scientific peers. We're not trained to talk to the community, we're not trained to talk to K through 12. school kids. It's part of why I teach at the college level, I was trained to talk to adults, you know, and people who want to learn the things I'm telling them. But as I've gone through my career, and I've seen so much more opportunity to engage people in science through something like Vista, and I've also engaged with our students in our community and see where there are gaps in what they've learned or how they've learned it that how we share science is so critical to the health of our community. And so trying to find ways to do that, and really, one of the most powerful ways to do that is to engage students in that process. They are members of this community. And so they know what it is to live in a town like Reston. They know what people know what they don't know what they can relate to what they can't relate to. And so making them part of that process, whether it's through VISTA or the health fair, we just did, or volunteering at the Health hut, or participating in the research that has this community aspect really makes it a more successful effort, I think, than if I were to go do it, because who am I I'm a college professor, right? I just don't know that. That's, that's not always the population or, or the group of people that have the greatest impact in their community. But I can certainly help students have that

impact, which I think a lot of them want, maybe now more than they have in a while they want to be part of solving problems and improving their their communities.

**Tonya Oaks Smith**
One of the the interesting things also is that you have distinct community supporters, donors, contributors, encouragers. How How does our community then give back to our students? I mean, can we talk, let's talk about how the new visual anatomy lab.

**Jamie Newman**
Yeah, so the the new virtual anatomy lab in Carson, Taylor Hall, is a really cool space. I mean, when you walk in there, you don't feel like you're in Carson Taylor anymore, which was really the goal we were going for. And that came about because really, through VISTA, this idea that that you could visualize human anatomy and interact with it in this way. So this is a touchscreen table where you can rotate the bodies and dissect the bodies, and it has for human cadavers, a dog, a cat, 1600, MRI, and CT scans all that you can interact with in different ways. And so when we, when we had this idea that we would like a space like this, and we would like this technology for our students, I reached out actually to the School of Design and Kevin seeing an architecture to see if he could help me take what was in my brain and put it on paper so I could show other people what I was thinking. And so his architecture class actually created a visual layout of the room, spring 2020, when we all went home, so they worked with photographs. And I think I gave them some dimensions. And we met over zoom a couple times. But the illustration that was created from that is what allowed us to reach out to our alumni and people in the community raise enough money to do this fairly expensive project by this key piece of equipment, renovate an entire room and Carson Taylor, which was no small task, given the layout of that building, and have it ready for students fall 2021 I mean, that was really a quick turnaround I think that could not have been done had we not collaborated across campus How could we not engage with people in the community who saw the opportunity in this for our students and now watching the students interact with it is just amazing. The other day a nutrition class came in and I heard this person in the back say, this is so much better than a textbook achieve the goal you know,

**Tonya Oaks Smith**
it is it's really cool it it now I remember the first time I walked in there, it was like I would be a doctor right now if I'd had this you know,

**Jamie Newman**
people don't want to leave you know, you can close a textbook and walk away. I see that happen all the time. But people get in that room and they they can't walk away from that table. So it is struggling to learn whether or not they want to.

**Tonya Oaks Smith**
Well, I think that brings us to the end of the time that we have today and thank you thank you so much for being with us, Jamie and so Happy Women's History Month. Thank you This is Women's History. And and I think I just realized why Gavin put up together.

**Jamie Newman**

Thank you so much. I appreciate it.

**Tonya Oaks Smith**
Well, thanks for being with us and we look forward to hearing more about great things that come out of biology and VISTA and research and all those areas.

**Gavin Kelly**
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