# 152. Leland Weiss: Breaking Something Down

**Gavin Kelly** 00:18
Hey everybody, you're listening to Beyond 1894 This is the official podcast of Louisiana Tech University. My name is Gavin Kelly, from the Office of University Communications, and our guest for this episode is Dr. Leland Weiss. He is the dean of the graduate school here at Louisiana Tech, and also a Thurman Lauret Professor in the College of Engineering and Science. And I think he might set the record, as far as our guests go, for the shortest distance traveled to get here to the podcast. He is from the Graduate School office, just down the hall. Our neighbors here on the 12th floor of Wiley, but Dr. Weiss, thank you for being here today. Thanks for making time for us.

**Leland Weiss** 00:49
Well, thank you for inviting me, I appreciate it. And it's good to be here.

**Gavin Kelly** 00:53
Yeah, sure thing. So, the Dean of the Graduate School, that's a new, relatively new thing for you, right? Let's actually talk about that first. So, you said six months on the job, right?

**Leland Weiss** 01:03
That's about right. I think January one was the official start. Yeah,

**Gavin Kelly** 01:06
so talk to me about kind of how that came about and why that was something you were comfortable taking on, why that was something you wanted to take on, and kind of what the thought process was behind that for you.

**Leland Weiss** 01:16
Yeah, there's a lot of factors in that. One, one of them is that I, I enjoy learning new things. I think I always have one of the, one of the nice parts of academia in general is that you know, probably if you're not trying to learn something new all the time, you're, you're falling off the, you know, falling off the mark a little bit as you try and keep up with what students need, and you know where industry is hiring and what job markets look like, so there's always a need, whether it's academic straight up or talking research or anything else. So I enjoy learning new things. This was certainly an opportunity to do a lot of that. I think I also like the ability to work across so many different programs and different colleges, you know, the position is unusual because it really does interface with all of the graduate academic programs across the university, and so there's, you know, there's there's certainly a lot to learn, and there's a lot of great people that I've been able to meet and work with, from, you know, it, registrar's office, different colleges, the deans, the associate deans, like it's it's a neat position in that respect, and so there are a lot of attractive pieces to it, and you know, at the end of it is the idea that we're going to serve our students and help them as they pursue the things that they're interested in doing, and I think even right now one could argue this is a particularly important time for undergrad and graduate academics, just because of the way the world is changing so swiftly with technology and AI,

so it's, it's an important time, and it's a big challenge. It's been fun, and it continues to be a learning experience. Yeah,

**Gavin Kelly** 03:09
here's to the next six months, and no pressure, right? No pressure.

**Leland Weiss** 03:13
We haven't quite figured out everything right.

**Gavin Kelly** 03:15
Well, good deal. We'll get more into the graduate school a little bit as we go on, but let's, let's get back to you, and let's kind of go back to the beginning, we do that with all of our guests, so tell me about where you're from, and kind of early on discovering academically the path you wanted to take, and those decisions that sort of led led you up to where you went to college and pursued your education,

**Leland Weiss** 03:36
right? So, if you go, if you go way back a few years, I was actually born in Canada. Okay, so there was a period of time where I was much more familiar with, you know, Vancouver and the Canadian culture than anything else. After a few years, we moved to Iowa. Okay, and I graduated from high school there, so if anybody has been to Iowa City, you know that's that was that was the high school period growing up. What was the reason

**Gavin Kelly** 04:10
for the move, if you don't mind

**Leland Weiss** 04:12
me? My dad is, or was at the time, also at university, he was at UC, and he was marketing professor, and so it was a, it was a job for him, got on, and so he got another job at University of Iowa, and that's, that's how we got there. From there, there was, you know, trying to figure out what to do. Yeah, so I think every, you know, every high school student

**Gavin Kelly** 04:39
exactly

**Leland Weiss** 04:39
is trying to figure out what to do, and probably by, you know, when you enter what freshman year, people start asking you, where are you going to school, what are you going to do, because that's when you have that figured out, and it makes you feel really comfortable when people ask that question too, or something like, you know, 14 years old, like, what do you do in your life, yeah, but I. Yeah, I really was interested in a lot of different things. Okay, and you know, some even, you know, is varied as history and engineering. Okay, and I decided to, you know, go with engineering, but I've always kind of wondered what some of those other paths would have been like. I think at the end of the day, mostly because I still like trains a little too much, and so there's a lot of, you know, a lot of engineering and mechanical aspect of that. Sure, that that that probably confirmed the direction for me from there. So,

from Iowa it was off to Pennsylvania, I went to Carnegie Mellon in Pittsburgh, and did undergraduate mechanical there.

**Gavin Kelly** 05:44
Did they just have a good program? What was the appeal there?

**Leland Weiss** 05:47
It was, I mean, it was in the family. My dad had done some, some studies there. I probably wouldn't have thought that much about it. They do have a really good program. I was looking at, you know, a variety of different good programs. One of the things that I've learned since being here is that, honestly, we can take our programs and really kind of stand them up against any number of those other schools with big names, and they're they hit the mark, they're they are really good, but, but that aside, I was, I was at Carnegie Mellon in Pittsburgh, and spent a few years in industry working at Caterpillar. After that, back to Illinois, I worked in their engine research group, that was a pretty good fit for me, and after a few years decided that I would go back to graduate school.

**Gavin Kelly** 06:42
Okay,

**Leland Weiss** 06:43
so that was a, you know, that was a, that was an interesting decision. I kind of hit the point where it was either time to do it or not do it, and it's always easier to do it if you're not trying to balance family and other things at the same time. So I decided that I would go back to school, looked at a few different places and programs, and ended up at Washington State.

**Gavin Kelly** 07:04
Okay,

**Leland Weiss** 07:05
and

**Gavin Kelly** 07:05
man, you're all over the map. We traveled a fair coast to coast, yeah,

**Leland Weiss** 07:10
and got lots of different time zones, lots of different, lots of different cultures too. One of the things that I've learned over the years is that, you know, the United States is one country, but it's almost like a few different kind of collected together, depending on where you're at. The expressions that people use, the way they interact with each other, all have some highs. So I'm not, I'm not trying to pick favorites, right? Of course, you turn the mic off, and we can talk about that. The so I was out of Washington State, I did work in what was what is called MEMS, so micro electromechanical systems, which is a lot of technology that's built on the same, you know, the same premise that they build computer chips on. Okay, they're just building up small devices and making them do things. We were collecting thermal energy, and after being there and teaching a few classes as a grad student, I learned about Louisiana

Tech. There was an opening. They decided to make an offer. I don't, I don't know, this still, you know, 18 years later, however long it's been exactly what process that had to go through, but we've been here since then.

**Gavin Kelly** 08:24
Yeah, the your graduate degree, what point did the doctorate come about? What was what was that process like?

**Leland Weiss** 08:30
I think when I went back to school, my thought was that if I just did a master's, then I was probably better off just staying at Cat, because I'd already invested several years there, and you know, established people knew me enough to understand that, you know, I had, you know, the ability to kind of work hard on different things and see things through, like the things that you would look for in a reasonable employee. Yeah, so to come back only with just a master's, I didn't really see that, that would be much of, you know, it wasn't going to get me to something like a national lab or a university, really, or and it wasn't really going to do that much for me with, with industry, the doctorate, I think one of the nice things about it, which is also one of the difficult things about it, is that when you have it and you find yourself back in academia, you are, you are free to pursue some of the things that you're interested in pursuing, but that also means that you have to talk agencies or external, you know, industries into supporting that idea through grants or other similar means, so there's flexibility and there's freedom, as long as you can pitch it, is kind of the way I would look at it, so it's a, it's a double edge sort of thing, if you. I, if I'd taken the PhD back into industry, I probably would have been titled kind of an expert in consulting, and been in charge of a research group. And one of the, one of the nice things about industry is you're generally just told what you're going to work on, and so, but you're also guaranteed to have that job and be working on that, so it's there's give and take to

**Gavin Kelly** 10:25
it. Well, that kind of leads into my next question. I can see some of your reasoning. So, I mean, you mentioned your dad was at university to marketing professor. At what point did you know? I mean, obviously by the time you took the Louisiana tech job, it would you were comfortable doing that, but teaching and getting into teaching at a university, what made you decide that that was the next path you wanted to take when it got to that point?

**Leland Weiss** 10:49
Yeah, I have always enjoyed kind of breaking something down and trying to explain it, and maybe that's just some of the way that I think about things, when it comes to, you know, some, some process, or some, you know, some difficult thing, but that's been something that, that I think made it a good fit, is just wanting to understand it, asking the question, why did it do this, and then if I have, you know, some, you know, some insight or think it's kind of neat, then explaining that to other people is sort of the nice part about, about teaching, and it's not all exciting, but every once in a while you do have something that you, you really kind of understand and can try and convey, and you know, on a good day, maybe a few people pick it up, but that's that's the, that's why, yeah, law of averages, you know, that's right. Yes, someone's got to understand it, right.

**Gavin Kelly** 11:46
Very good. And I mean, you stuck with it, obviously. So I'm sure your teaching role changed, and at one point you were a program chair, department head, or something, right? So what charts were to your journey here at Tech Forest.

**Leland Weiss** 12:01
Right, so I was doing teaching and research in College of Engineering and Science for the first number of years, went through tenure track, and I guess in about, you know, let's say 2017 or so, and a an opportunity came up to be an academic director for that college, which the academic director is another name, somewhat for a department head. The difference in College of Engineering and Science is that that person is in charge of several disciplines underneath them, so that there's that distinction, which is not universal across the university,

**Gavin Kelly** 12:45
the at this point you've been teaching mechanical engineering, mechanical,

**Leland Weiss** 12:48
and there are a few classes that cross over course, you know, so that I would, I would sometimes see civil engineering and some things like that, but that was so I took that position, continued teaching, I think you try and maintain some research, you know, presence in that position as much as you can, because one of the, one of the things that you'll do is identify, hire, and work with new faculty who are working their way through the same sort of process that you just went through, and if you're going to have insight, and you're going to be able to help, then it's good if you're still trying to do all of those things, and that was a.. it's a difficult job. There are, you know, certainly.. I think there are.. there are highlights. It's also one of the places where you know, if you, if there are challenges and problems, they're probably going to rise to that level of, of supervisor, and you're going to, you know, walk faculty and sometimes students through some pretty difficult things, so it's a rewarding job, it's a really demanding job, and I did that until this current position,

**Gavin Kelly** 14:07
and also, I mean, I guess that job too was kind of a good prelude, a good way to kind of cut your teeth in preparation for something like being the dean of the graduate school, where you know you're responsible for different disciplines and different people, and you know,

**Leland Weiss** 14:18
yeah, I think that that was that was helpful. I think you've got to really do the job. I was about to say, do the job well, but you would have to ask other people if I did the job well. To do the job well, you really, you need to be willing to learn about the disciplines that you didn't grow up with, right? So, initially it was civil, mechanical, and construction engineering technology that I was an academic director for. I was briefly an academic director for industrial engineering when mechanical flipped out, so and you've got undergraduate and you know not as much graduate direct supervision. The way the college breaks it up is a lot of the. Academic side is a is a role played by program chairs that you know that that is indispensable because one person you know an academic director can't really possibly do right all of the things all of the disciplines but you've got to be willing to learn what the faculty are doing, what you

know, why they're doing it, what the opportunities are for them, if they're research faculty, what they like to, you know, where, where they're great at teaching, where things may not go be going as well, and what you can do to work through that, and it can't just be in the classes that you know you've taught, so there needs to be, I guess, a willingness to engage things that you weren't initially familiar with.

**Gavin Kelly** 15:47
Very good. You mentioned you know part of your, your joy for teaching comes from a joy of breaking things down and being able to, you know, make complex topics understandable. Do that for me right now. Let's talk about your research, so you know, you get graduate degrees, and you know, research is a requirement of that, especially at the doctoral level, and then you have a hand in research your whole professional career, pretty much up to this point. So, talk to me about your primary research interests over the years, and like the topics that you've been most heavily involved in.

**Leland Weiss** 16:17
Well, I wasn't aware that there was going to be an exam as part of the interview, but let's see what we can do with it. Sure, really, one of the themes that I've worked with throughout is this idea that when you've got something larger, like an engine, it's going to do some work,

**Gavin Kelly** 16:36
move the

**Leland Weiss** 16:37
car down the road, something like that, but it's also going to be putting out a lot of heat in different places, so you put your hand next to the exhaust when it's on, it's hot, so it's losing energy that way. All that energy comes from, you know, the gallon of gas that you just put into it. And it turns out that the, I mean, this is this is not a pretty number, so you know listeners may go back and edit this, but the a gallon of gas, roughly 1/3 of it actually ends up moving your car down the road and doing, doing what we would call useful work. Another third of the energy goes out the tailpipe, and then another third of the energy goes out the radiator, so we effectively toss two thirds, yeah, all the energy out into this into the environment, just as heat,

**Gavin Kelly** 17:32
yeah.

**Leland Weiss** 17:34
And over the years, different, you know, there have been different approaches to try and limit that as much as possible. I mean, it's one of the reasons that hybrids are really popular. If you can turn the engine off and use electricity for a little bit, and just use the engine sometimes. But one of the difficulties of just saying, well, we're going to go and reuse all of that energy is that it's not coming out at very high temperature, I mean, you may not want to touch it, but it's not high temperature, like we're going to run this steam engine off of it. It's, it's what you would call just kind of low-grade waste heat, it's just wasted. There's not much else to do with it. So, what we worked on, and you know, still even today, are actively interested in is this idea that okay, we know the temperature is not very high, but there's a lot of it, so what can we do, say on the small scale, take the temperature that's there, take the energy that's there,

maybe not try and boil water with it, but maybe we could boil something else with it, yeah, and do do something useful with that, right? So that's it's the idea of how do we, how do we take this stuff that we're just throwing away and try and get something back out of it. So that's that, that that whole idea has kind of been a constant theme. There's been a few other things that have come up, one of the

**Gavin Kelly** 18:59
one

**Leland Weiss** 19:00
of the aspects of research that you know people who are from, you know, people who do it are familiar with is that every few years the focus changes. You know, when I was in grad school, everybody was excited about, you know, this one particular thing, and five years later everybody's done with it. And so they're there, you need to be able to kind of pivot and switch as different different agencies and different needs surface, so there have been other things that have come in. We did some 3D printing work and materials work over the years too, so it's varied, but I think the idea of, honestly, can we make this better, yeah, is really the core of what I've done, very

**Gavin Kelly** 19:44
nice, and also to like kind of similar to a lot of other guests I've had on, and kind of a lot of the work that gets done here at Louisiana Tech, in terms of trying to take waste and byproducts and turn them into something useful. I know our forestry program here is doing a lot of that, I know I. Um, Dr. John Lynham, I've talked to, you know, doing things like taking human urine and the byproducts from that, and being able to use that to grow plants in space, you know, so very interesting that there's sort of a common thread through a lot of those research topics going on here at Tech, but it's like you said, it's to make things better, so very nice. Let's talk a little bit more about the graduate school, got a couple more questions for you before we let you go. We talked about kind of your reasons for taking on the dean role at the graduate school, and you've already mentioned a couple of the reasons you think the graduate school here is special, and the programs can stack up against some other high-ranking places in the country. Talk to me about kind of your short term or long term, your call sort of hopes and visions for the graduate school, and sort of the reasons you do think that the graduate school here at Louisiana Tech provides opportunity for students seeking an extra special education. Yeah,

**Leland Weiss** 20:53
I mean, the graduate school is certainly unusual in the ways that we've already talked about, but a lot of the graduate students, they don't, you know, they will live their college, their graduate career kind of in, in their specific colleges, and so a lot of our work is really spent supporting the colleges and supporting the graduate, I'll say the graduate departments in those colleges, so I view this really, as you know, we are a, we are a networking and supporting agent in the university, and you know what that means is that, you know, the vision then becomes, how do we enable all of, you know, all of these different programs, and they're actually, they're quite a few of them. I think there's something like there are eight or so that are purely online, and then by the time you count graduate certificates and other things, there's you push close to 100 different graduate options. Yes, and how do we, how do we do the best job that we can, supporting, enabling, and growing, or helping to grow, you know, those programs, because there's nothing that really I can do directly that's going to suddenly make a huge enrollment

difference, but if we can work with the colleges and those programs, then we can do things like better support the way they want to advertise themselves, we can make sure that we're working with, say, the Honors College and getting opportunities in front of students that are already engaged academically, maybe doing research, you know, the so these are some of the ways that you know I'm kind of looking at our role to support and partner going forward, and within that, there you know, there's some, there's some opportunities, even for finding ways where we can drive increasing research for faculty, figure out who the right partners are. I don't expect that you know the graduate program is kind of like the lead institutional figure on that, right, but if we can start making the connections that also support graduate students, right, more that scholarships, that's a recruiting tool. So again, it's all back to this idea of, you know, what are what are what are people around the campus doing? What do they want to do, and how do we help facilitate that more and more? And that's one of the things that I've been doing over across the first few months is just spending some time around the campus talking to different people and learning as much as I can about their students, their programs, and, you know, some of the challenges that they face, ways that we can do a better job supporting them. Sometimes it's through things like, you know, we don't, we don't need to do a podcast on all of the different processes, right, but sometimes it's things like, How do we smooth this out for the sake of the students and spending some time working on that, because you know we're we're in the business of faculty, staff, and student support, and that's that's what pulls it all together.

**Gavin Kelly** 24:13
Very well said. Sounds like you're using all three thirds of your energy, so don't have to worry about that. I got one more question for you, and I like talking to guests who have been here for a few years. So, you said, what, 18 years, almost 20 years? You've been here, that, yeah, that's so.. you've been here, I'm guessing longer than anywhere you've been in one place for the rest of your life. Yeah,

**Leland Weiss** 24:33
occasionally I think about that. Yeah, and then I think, you know, if I'd stayed at Caterpillar, I would have been eligible for retirement.

**Gavin Kelly** 24:41
Who knows? Who knows what their retirement package is like. That's true. Yeah, maybe they wouldn't want, but I people who have been here in Russ and at Tech for as long as someone like you has, I always like to ask the question about, you know, like what's changed? Like, how have you seen maybe the programs that you've been a part of change. Over the years, how have you seen the university as a whole change? How have you seen sort of people's, what they value academically? You know, it could be anything. I just, I just want to know, kind of on a general level, which makes this kind of a tough question, but you can answer it any way you'd like. How, over the 18 years, have you been here, have you seen the university change?

**Leland Weiss** 25:19
Yeah, there's been obviously a lot of change. I know when someone comes and visits the university, say, after a decade, you know, they, they observe, you know, just visually the changes. Yeah, it's a.. it is a more beautiful campus than it was, certainly when we got here. Yeah, there are nicer buildings around, the lighting is better, the grounds are, you know, are in better shape. So certainly the university

just, it presents itself much better than it has, and I've seen that also reflected just in the way that we reach out to students and how we are attracting students and presenting the university to students, we are, I mean, we really are a, we're a hands-on university when it comes to working with our students, and we do an increasingly good job making sure that they know that, and as I think you know, Dr. Th, Heath Tims has said, if a student comes and visits, they come here, right? So that's what we do. We do a really good job with that, and I've seen us kind of get better with, you know, different events across the years, and the education has continued to, you know, evolve.

**Gavin Kelly** 26:40
Yep,

**Leland Weiss** 26:40
I think you know, I certainly can't speak for the university as a whole, but certain, the things that I've seen have always been progressing. Yeah, what, what are what are the things that we can put in front of the students that make this point better now than it could have been done? Yeah, a decade, you got to keep up. That's right, yeah, that's right. Yeah, so I've seen all that change, you know, for the better, I think, you know, certainly Rustin has has changed, the, as I, as I look back, the, the big win when we got here was that there was an Applebee's and a Chili's and the movie theater opened, so from there to this, and you can kind of fill in the gap of all the changes, it's a, you know, it is a much, it's a, it, it is a town that never lost its downtown and continues to be sort of a place that's nice to be,

**Gavin Kelly** 27:40
yeah,

**Leland Weiss** 27:41
and I think you know this, our location has kind of flourished,

**Gavin Kelly** 27:47
yeah,

**Leland Weiss** 27:48
in that sense too, over the years. I mean, we have a bike trail now, yeah, right, that there aren't, there are not a lot of places along, you know, I 20 that can really point to anything, right? So, so just, you know, things like that. Obviously, we've seen, you know, a lot of changes in students and expectations, and all of our programs and faculty have had to meet students at different places over the years. We've done a really nice job of, you know, bringing students along and get continuing to give them the education they need, even as, say, you know, generations come and go, and, you know, I don't mean this in any kind of negative way. What I'm going to say is, you know, for someone like me, it was not unusual to have a wrench when they were, you know, 12, and help remove a spark plug, you know, and now that's, that's pretty uncommon, so you are, you're, you know, you're looking at, you know, it is, is a, it's a different experience that students come to campus with than they did 20 years ago, and we've done a really good job tailoring our education programs to kind of reflect that and work with it, and use also the technology that they're familiar with to continue to give them a good education, so those are a few thoughts that come to mind,

**Gavin Kelly** 29:24
like that. Very well said, and very insightful, and very interesting. Also, you know, maybe you've thought of this already. 18 years you've been here, you're at the point where you might have a student in your class who is a child of a student that you taught within your first couple years here, so you know, full circle moment, you never know. Well, Dr. Weiss, thank you for making time for us today. I know it's summer, but, and I know you're no stranger to this, because your role as an academic director in College of Engineering means that you work year round, you know, like apart from teaching, you know, for some teachers in the summer is. Time off, but a job like this is going to be go, go, go, even in the summer. So, thanks for making time for us. And

**Leland Weiss** 30:06
happy to be here. Busy summer quarter, appreciate the opportunity.

**Gavin Kelly** 30:09
Yeah, we'll see you around. Thanks. And, hey, go dogs!

**Leland Weiss** 30:11
Yeah, go dogs.

**Gavin Kelly** 30:25
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