

TZB: Tanya Zanish-Belcher

MR: Dr. Megan Rudock

Transcription: Craig Fansler

TZB: This is an interview with Dr. Megan Rudock, and the date is Monday, February 8th. My first question is would you like to share a little bit about your family background and where you grew up?

MR: Sure. I grew up in the Atlanta area, Atlanta, Georgia. I spent most of my childhood there. Before that, I was actually born in Tennessee, where my parents grew up. Education has always been a big part of our family life. Both of my Grandfathers were professors at the University of Tennessee. My parents grew up in Knoxville and met each other there. That led to them moving around and what not, eventually settling in Atlanta, where I spent most of my childhood prior to coming to college.

TZB: That raises my next question. Did you receive encouragement from family members or from teachers when you were growing up that drove you a little bit towards the sciences?

MR: Absolutely. I think it was both something that was a strength of mine, but also there was a lot of encouragement. My Grandfather on my Mom's side was a botanist and ecologist. And so I have very fond memories of growing up and going on walks and hikes through the woods. Then he would teach us all the names of the plants. Then tell us all about the ecology of the area and so that was always a big part of our summer every year. Even my Grandfather on my Dad's side was in Dairy Sciences, and so I think there are a lot of science folks in my family. My Grandmother and my Mom both were nurses, so that kind of draws from the sciences as well. I think that there's been a lot of science in the family. It's just something I always thought was really fun, and I was relatively good at. I enjoyed taking science classes. My science teachers in high school were all encouraging also, especially my chemistry teachers. I'm sure partially because I excelled at it, but also because it was something I enjoyed, and they were passionate about it so they encouraged us to follow our passion, and to find things you are good at and try to follow that pathway.

TZB: Really hitting that sweet spot. It's something you care about but also something you're good at. Why did you choose the University of Georgia?

MR: Well, for me University of Georgia was not my hometown school, in the sense that it's not in Atlanta, but was still relatively close. It's about an hour and a half to two hours from where I grew up. So I could still get the away school experience, but not have to be too too far away. Also, the significant push when I was in high school, the Hope Scholarship was established, not long before I was in high school, which was funded by the Georgia Lottery and paid for students who had above a 3.0 gpa to go to an instate school. It paid our tuition. And so I wanted to explore out of state options, not too far from home. I considered the University of Tennessee

because my Grandfathers had both taught there. Ultimately, the quality of education at University of Tennessee vs, the University of Georgia was just very similar, but I could get a full tuition scholarship to Georgia. So that kind of made the decision for me. It was very financially feasible but also had strong academics and was a good big state school that had lots of opportunities and major options and things like that.

TZB: Were there particular courses that you recall as being influential or ones you really loved?

MR: Yes. I took a lot of different science courses. I went in as a chemistry major because it was something I was really good at, and seemed pretty easy to me, at least initially. Partially because I'd had really strong chemistry teachers in high school, so the introductory courses weren't extremely challenging. So it was comfortable and kind of a comfortable thing to do when you are at an away, far away place and kind of trying to find your path. I had a really great experience in my very first chemistry course. My chemistry professor was fantastic. He was involved in developing a lot of resources within the department for chemistry students and was very much into chemical education. I didn't take biochemistry until my junior year, and when I took that, it was super fascinating. I'd always been interested in biology but never very good at it. I always felt like I was struggling a little bit because I'm not good with rote memorization which a lot of biology requires. It was a great combination of the two. It explained a lot of the biological principles that I was interested in and found fascinating, but using the basic chemistry to explain that. That was really a turning point for me realizing I could use the chemistry that I was comfortable with and that I liked, it got more challenging, I'm not going to lie, it got pretty hard towards the end of my undergraduate career. But, that I could use that to explain biological systems. So I started doing some research on campus, and did a research fellowship over the summer at the Medical College of Georgia, doing some biochemistry/molecular biology work there. I took genetics also which I thought was amazing. Those two courses are really what kind of sparked my interest and helped me move toward graduate school towards thinking about career paths in the future.

TZB: I have to ask, what appeals to you about chemistry?

MR: I like chemistry because I think it is kind of the basic foundation of everything. I like that you can dive into chemistry and understand down on a molecular level why things work the way they do. That's one of my favorite things about teaching biochemistry and about taking biochemistry both. It's understanding. I really like the area of metabolism, so looking at nutrient metabolism. So, I eat something. OK, how does that provide my body with energy? A biologist might explain that on a very topdown pathway approach. But a biochemist, somebody with a strong chemistry background can explain all the way down to a mechanism of how a particular enzyme works on electron shuttling mechanisms, or how this particular nutrient gets broken down into its component parts and where those go within the cell and how they produce energy. That's what I really love about chemistry is that it really is the kind of foundational science that explains everything. You can really break everything down to an atomic level and a molecular level and you can really dig much further than that in my opinion. I like that it explains, kind of answers all your questions but like in the most in depth way possible, and I like that.

TZB: How did you go about the process of, you probably knew you were going on for graduate work, how did you go about making those decisions about what to pursue and where?

MR: Initially in college, I started off premed, which I think so many students do. A couple of things made me decide to go to graduate school. One, that in talking with my grandmother and my mom, who both were in nursing, and speaking with some physicians that I either knew, my aunt is a emergency medicine physician, in talking with them about family life, I wasn't really sure I wanted to go into medicine, to go to medical school and get an MD because I was concerned about being able to balance family and career. That gave me a lot of anxiety. That was part of it. Part of it was I really enjoyed the research I was doing. I worked for a year and a summer in a biochemistry research lab on campus at Georgia and then the fellowship the summer before. So I think those two things really led me to strongly consider graduate school. I searched the job market a little bit and wasn't wild about the options, so I figured that graduate school would open more doors. I also spoke with my grandfather who was definitely a big role model for me in making those decisions and going to grad school was somebody I could really talk to that understood where I was coming from and the decisions I was trying to make and had some good experience and advice for me. Then I began looking for graduate schools and I knew that I wanted to do something a little bit more clinical, where I could take maybe take my interest in medicine and approach it from more of a scientific perspective. So I started looking at schools that had programs in biomedical sciences, and specifically schools that had programs in using biochemistry and molecular biology or genetics. Those were kind of the key terms I was using when I was searching for programs in the biomedical field. I knew that I didn't want to be, I wanted to expand my horizons a little bit. I didn't really want to stay in Georgia, but I wasn't sure I wanted to stay in the Southeast at least. I'm a southern girl, and I just don't know how I would do so far away. As independent as I am, and as independent as I learned to be over college, there's some security in having your family within a day's drive. So that was a little bit of it. Using all those different terms, and doing a lot of online searching, talking to my research advisor a little bit, talking to my grandfather, talking to my mom, I started to come up with a list of places. And then, I started to think about what I really wanted. One of the appeals of Wake Forest was that the graduate program that I applied to was at the Medical Center, so there was more of an opportunity for interaction with physicians and folks in the medical field. There were programs that were at really big schools, there were programs at really small schools, and I think Wake Forest kind of hit that sweet spot where there's a small undergraduate campus, there were good basic sciences on campus, but it was a really good size graduate biomedical science program. The year I came in, I think there were 54 students that were PhD/Masters students on the Medical Center campus. I also liked that the program, the individual programs themselves, were very small. So you got a lot of very intimate level education, really one on one interactions. My program, that I came in under the molecular genetics, which morphed into molecular genetics and genomics, which was a program that was kind of under the umbrella of biochemistry, we took a lot of the same courses as the biochemistry students. We brought in 3-4 students a year. It was a very small setting where I could really get kind of one on one training and have a lot of in depth interactions with my mentors. That's what really led to me choosing to come to Wake.

TZB: Could you talk a little about what you chose to focus your research efforts on while you were working on your degree?

MR: Sure. My path wasn't very direct. My program requested that we do three rotations, three research rotations. So that meant we spent basically fall semester in one research lab, spring semester in one research lab, and then, very likely a summer if we weren't completely sold on one of the previous two. So, three semesters in three different labs to kind of test the waters because it's not just always about the content and the subject material, you also have to make sure you have positive interactions with the people you're working with, and it's a good environment for you. You've established a good working relationship with your research advisor and the other individuals in the lab who will be mentoring you. I did a semester of research in a cancer biology lab, and I thought some of the research I had done in undergrad had been in mouse models. I thought I'd really enjoyed working with those, and so I looked a little bit into what individual labs were working on in their model organisms. I was pretty sure I didn't want to work in bacteria or viruses. I wanted to work in a more relevant model organism. So I did a semester of research in a lab in cancer biology that was looking at lung cancer and smoking and some of the different lung morphologies. And things that accompanied smoking and lung cancer and some of the different drugs we could potentially use to treat that. I thought it was interesting but I don't think I meshed very well with the people in that lab. So then I went and worked for a semester in a molecular and cellular pathology lab. We worked with mouse models. In that lab, the research was super interesting. We were looking at the effects of estrogen on plaque development in your arteries and atherosclerosis and some broader things as well. It was much more what a lab itself with fewer people in it. It was a much more collaborative environment. So I had kind of a one on one interaction with my research advisor, my faculty advisor but also, we had a group of several faculty members that all worked together. I also got to work on the non-human primate models and that was really interesting. Our lab was actually off campus, outside of the medical center which was not one of my goals in coming here but we did work with quite a few physicians so it was a good fit, and the research was really interesting. I ended up working on the primate necropsy team which was really cool, almost like surgical procedures and things like that. That was going well for a while until our lab ran out of funding. So one of the collaborators from the research grant that paid my salary, the grant I was on ran out, and then another grant didn't get funded. So there was this huge gap in funding, so we were put in kind of a difficult position of either trying to move within our group, but money was kind of tight or went somewhere else. What I ended up doing, I kind of tried a little bit of both to see what was going to work out. I ended up moving into another research lab back at the medical center working in human genomics. It was a little more clinical working in humans now instead of primates, but still working in cardiovascular disease. So, all of the clinical pathology, all of the molecular and cellular pathologies that I'd learned in my previous research lab for that year and a half translated perfectly into the research I was moving into. So that worked out very well. Like I said before, a little bit's some luck and human interactions and some interest in human research. But I think really just making sure that you're doing something that's really exciting, that you feel really passionate about, is making a difference-I think that's ultimately what led to me choosing a lab. As unfortunate as it was the circumstances that required me to move labs after my second year in graduate school has actually been kind of a

blessing in disguise. It was a much larger research group, but we had graduate students, we had junior graduate students, senior graduate students, we had post docs, we had staff members who were training and serving as mentors all under one faculty member. It was a really great environment and led to me, four years of graduate school and a postdoc, and continued research collaboration and so it ended up working out well.

TZB: I know you've talked a lot about research, but you've ended up doing quite a bit of teaching, especially over the past 10 years. Can you talk about the process of how you ended up doing that and how you balance teaching with continuing to do research.

MR: I feel like my career path has been a little windy. That's OK, because I've enjoyed every bit of it. During graduate school, we had some opportunities for training, to kind of help with training junior graduate students and things like that. Where I got my start in the jumping point for teaching was during graduate school, I guess it was one of my last two years of graduate school. There's a course that was taught through the Center for Human Genomics for a lot of graduate students, and by a lot, I mean 12 or 14, more than just our program. So, the graduate students who did research under the few faculty in the Center for Human Genomics, that were in their final years of graduate school were often asked to serve as TA's for that course. That's one of the things that's a little bit different about being in biomedical sciences is that because we don't have undergraduates on our campus, we are required to TA and we don't have teaching responsibility. So that was the first time that I had the opportunity to mentor students and serve as a TA. There were certain portions of the class that we were asked to kind of coordinate or teach ourselves. That was kind of the beginning. In my first year of postdoc, there's a course at the medical center that's like a career development/bioethics type course. They were looking for senior level graduate students and postdocs to facilitate this course because it was a course in problem-based learning. So I served for 2 years in my postdoc as a facilitator which basically meant that I worked under a faculty member and was kind of the teacher for a group of about 8 students. We'd meet once a week and have roundtable discussions and work through these problem-based learning models in bioethics. I found that I really enjoyed that. After I graduated, I stayed in my lab for about a year to finish up some publications, then did two more years after that as a genetic epidemiology fellow in public health science, again moving a little bit more clinical. During those 3 postdoctoral years, one of my friends who was a postdoc in one of the labs I'd worked in, had been teaching at, she'd been teaching genetics at Winston Salem State. She was moving for a job and they were looking, they'd asked her for referrals for somebody to teach the course. She asked if I was interested. We had done some of the bioethics together and so I said sure, why not, I'll give it a stab. I ended up teaching a full year. The first semester, I think I taught 3 courses, the second semester I think I taught 3 lectures and 3 labs or something, and was working on postdoctoral research. I found that I really enjoyed teaching. During all of this time, I had gotten married and started a family and was kind of tied to Winston Salem. So my research options were a little limited, and as I was finishing my postdoc I was trying to look into what options were out there. I was exploring staying in research and some research labs. A friend of mine was teaching, had just taken a position at High Point and had gotten an email about an opening at Wake Forest on the undergraduate campus for a Visiting Assistant Professor. So I figured I would interview for it and see how it went. And, ultimately, it

went well, and I got hired for a one year contract. I knew that I enjoyed teaching, and then when I came to Wake to teach undergraduates, it was like all the things I really enjoyed about teaching but more. I think what I really loved about, I really loved teaching but also what I really loved about teaching at Wake was teaching at the higher level where most of the students that came into my freshman level courses were very, very smart. Top of their class, most of them, and a good number of them had already taken chemistry before coming to college at some level, and maybe either their AP score just wasn't quite high enough, and they had taken AP chemistry, or they didn't take AP but they had Chem 1 and Chem 2, so they had very strong backgrounds. So it was really fun to teach students who were pretty well versed at the basic stuff and we could kind of go beyond the basics of the class and really explore things in more detail and talk about application and relevance and it just made the course so fun to teach. I think that's really what got me excited about teaching, even more so than I had been before coming to Wake Forest was being able to teach at that higher level and being challenged by my students. To not only bring everybody to the same place by the end of the semester because they were all coming from different high schools with different experiences. So you had that challenge, then also the challenge of having exceptional students who really wanted to know above and beyond what was in the textbook, and the basics they needed to know to move forward. So that was really fun.

TZB: So how did you move to pre-college immersion courses, which is a whole different kind of teaching?

MR: It is. Most of my teaching at Wake has been kind of in two places. One, about half of my teaching is entry level Freshmen, which I really enjoy the challenge of those courses. And the other half of my teaching has been mostly like premed or Bio and Chem major Juniors and Seniors, teaching Biochem and teaching a Biochem lab. I really enjoy teaching those entry level students. During my time teaching at Wake, during graduate school, during my postdoc, I've done a lot of outreach work. We used to always do, in graduate school, DNA day. We'd go to elementary schools, middle schools or high schools and teach them about DNA. A good friend of mine in graduate school was a Neuroscience major, but they were always looking for volunteers to help them with Neuroscience outreach. We'd take a big cooler full of brains out to schools and let the students hold them. They were all fixed brains, and let the students hold them and teach them about neurons and about all these different things. So I've done a lot of outreach and I enjoy getting the younger students excited about science. Part of me, when I look back, I had great science teachers in high school. I have one particular middle school science teacher that I remember who was just super energetic. She was actually a pretty young teacher, had just recently started teaching, she had been a cheerleader in college, and all that energy she brought to teaching. Doing outreach and bringing those experiences to students has always been really rewarding. So, I guess it was 4 maybe 5 years ago now, I think 2016 may have been our first year we did the Biosciences, I was approached by one of my colleagues in Chemistry, because she knew I did quite a bit of outreach work. They had just developed this precollege program, the Summer Institute Programs the year before and they were looking to add kind of a science program to that. So we started just having some casual conversations and came up with some great ideas, and the next thing you know, we have 2 weeks of 48 kids each

week showing up the next summer ready to learn about science, engineering and Wake Forest and all the cool things we have going on at Wake Forest. It was super exciting. Super fun. All of the outreach I had done kind of led me into that. Part of that too was having children that were about that age. My oldest son started, I guess he was in maybe third grade when I started teaching, second or third grade. So having kids that were that age made me want to share stuff with children. Having the outreach experience, teaching these entry level courses, it was a great way to kind of combine those two things to a summer program where we could bring students in who were excited about science, excited about Wake Forest, maybe interested in coming to Wake Forest. We could show them all the really cool things going on at Wake, both at the undergraduate campus, the Biomedical Center, Wake Downtown, Innovation Quarter, all of those resources that are available to students on campus. Do some fun experiments, just help them see all the careers available through science, so kind of just give them a really strong introduction to science and to Wake Forest that hopefully would help them better focus their decisions that are really at a critical time in their life when they're trying to decide about what they might want to major in, and what career they might be interested in, if they want to go to college-all of those kind of things. It's a great way to take a lot of the experience I had both from teaching on the main campus and having done a bunch of research in multiple different places through the Medical Center taking all of those experiences and pulling them together and being able to provide a great experience for the students.

TZB: So what's it been like to convert all of this work to an online experience during a pandemic?

MR: Oh, goodness. Certainly not ideal. Science is not meant to be done remotely. It's really hard to do science experiments when you can't be in a lab. We did maybe 3 or 4 years in person and then last summer we had to convert to remote. We were really hopeful that we would be able to meet in person. I guess it was around the first of April we decided it just wasn't going to happen.

My goal was to try and give the students as much of the same experiences as possible in a remote environment. So what did that mean? A lot of creative thinking. I didn't want to just convert everything. We were only going to do a half day, 4 days a week, instead of a full day, four and a half days a week. So, kind of jam-packing those sessions without being overwhelming. I didn't want to just convert it, science is so hands on, I didn't want to convert it into just talks, lectures and interviews and panel discussions and things like that. I wanted the students to be able to get their hands dirty. We came up with a schedule that had a good mixture of introducing them to Wake Forest, introducing them to different science that was going on, we created a whole list of videos, a Youtube channel of Science at Wake research videos for students to have access to so they could kind of see what was going on in the labs at Wake. Every day when we started, I tried to host all four days at different places around campus. And every day as we started, I would walk them into the building and kind of show them around where I was just so they could get an idea of what it was like to be on campus. We started one day at Salem Hall, we went in and I kind of walked them through the building and showed them what the classrooms look like, what the labs looked like. One day, we were at Wake Downtown and I kind of walked them through that and kind of showed them the area just from the patio

outside. So kind of making them feel they were at Wake was a really big priority. I also, our institute was the only one that did it, primarily because we're science. We created care packages we sent to all 96 students that had supplies in them to do at home experiments. We did at least one, if not two experiments every day at home through Zoom. We would meet everybody through Zoom. We had four program ambassadors that would help us with break out rooms for small group discussions or for help if they fell behind while we were doing experiments. I set up in the lab and walked them through the experiments, and it was super fun. I think it really is what made that time that students were really wanting interaction and wanting for experience, and all of that, much more fun than it could have been otherwise, rather than just saying sorry we can't do it because we can't be in person. We did kitchen chemistry experiments, is what I call them. Stuff that's safe to do at home that doesn't require anything you can't buy at the grocery store. Really what we sent them was little plastic test tubes and things to be able to use for the experiments. Almost everything we used, strawberries and lemons and rubbing alcohol, grocery store resources, but it was super fun. We had panel discussions, I brought in a bunch of former students that are in all different places in their careers for a panel discussion and to answer questions the students had which was super successful. I had students who were from undergraduate science majors, folks who were in graduate school, folks who were in medical school, in PA school, in nursing programs, and I had people who are currently physicians, occupational therapists just for them to be able to ask questions they had about how did you get into this career, what did you major in, or how did you choose, all of those kinds of things. I think the students really benefited from that. It was definitely a struggle trying to convert everything to be online and remote while still kind of giving them as much of that experience as we wanted to, and trying to help it feel as authentic as possible.

TZB: And so you've been doing filming for the coming summer. What has that been like?

MR: Wake Forest Pre-college Programs, in order to try to expand our offerings beyond the in-person summer institute, we want to be able to offer things to students that they can explore at their own pace or on their own schedule. Not all students are in a position, either due to sports, or due to financial situations or whatever to be able to travel and give up a week of their summer to travel to Winston Salem. While we've had a diverse group of students from all kinds of backgrounds. We've had international students come for our summer program, which is amazing to me, but we wanted to provide more options. So, Wake Pre-College Programs partnered with Kaplan to start putting together some online programs that students could have access to on their schedule. We were looking into developing a program that started last fall. We kind of brainstormed a bunch of different ideas. It kind of drew on diverse experiences I've had in my career, and that I'd feel comfortable leading. Some of the ideas I came up with, we may pursue in the future. One of them that seemed very relevant right now because of all of this going online and remote was looking at the science of infectious disease. So we began developing this course looking at the science of infectious disease because we hear about so much of it in the media, on social media and news media. People are becoming more comfortable and more familiar with a lot of the terminology. So we thought it would be great to further investigate that, and that students might really be interested in further investigating the

details of infectious disease. The course isn't all based in Covid. We do reference it occasionally as a very relevant case because everyone is living through it right now. But we also look at a lot of historic pandemics and things like that. It's been a lot of fun, we filmed back in December, they're working on post-production now. Then this summer what we'll be doing is we'll be offering rather than just a one week in person course, at two separate times during the summer, we're offering a two week course where they will go through the online course and we'll have these, we call them plus live sessions. The plus live sessions will be kind of an added benefit. We'll have experts come in and talk. We'll do some hands-on activities. We'll do break-out virtual case studies. It's to make it more of an immersive experience since we can't be in person, than just going through it on your own. We'll have checkpoints in the course, that we'd like you to get to this point by this day because we're going to have this expert come and talk to us about something that's relevant. It's been a ton of fun. I can't wait to see what the course ends up looking like because I haven't seen it yet, they're still doing all the post-production work. We're currently planning the plus live sessions for the summer. We'll have two groups of students coming in the summer virtually for that. I'm hoping to add not only a depth of material to the online course for their benefit, kind of supplement the course a little bit with experts and activities and things. But also add a Wake Forest touch to it and give them some of that feeling of being on campus again, and do some of the things we did last summer that I think really help the students feel like they were part of the Wake Forest community.

TZB: Do you envision that even after the pandemic is over and you're back to in-person institutes and immersion courses, do you still envision having an online component, a virtual component in it because it allows you to reach so many more students?

MR: Oh, absolutely. Our initial plan this summer was to do a two week online plus live course in June. Then to do the fully in person course in July until things just didn't seem to be getting better, so now we've moved to fully online for the summer again. I think with Covid Summer Immersion teaching everybody has learned the values of having remote options. I really believe in the future we'll continue having a mixture of the two every summer, because you can reach so many more students. It's totally worth having that option available to them, and it's best for them, and it's best for us too.

TZB: is there anything else you would like to share about that process or the process of thinking ahead and where you envision it going?

MR: It's tough. I think, in working with the folks in Pre-College Programs, the scientist in me from the first meeting we had in the fall about this coming summer, I was fairly certain we were not going to be live, that we were not going to be in person. It's tough when you don't know what to expect and you're kind of hoping for the best and wanting to plan as if you'll be able to be in person even though it may not work out. It's been hard. I try to work on what I know first and what I don't know second and so I've kind of steered our planning meetings initially toward, so let's go ahead because we know we're doing this online thing. Let's go ahead and start planning that. Once we have more certainty about the in person option, we can work on that. So fortunately, just because of the way I work on things, we had not a lot of in person planning yet.

Then we decided to go fully online. So it ended up not being a lot of wasted effort. But I think it is really hard. One of the biggest challenges teaching during the pandemic when you have students that are on campus, you don't know from week to week what's going to happen. It's really tough to always have this Plan B place and you have to plan a Plan B in case things don't work out. Fortunately, Wake students have been fantastic about social distancing and mask wearing and everything else and we were able to keep everyone on campus the entire Fall Semester as planned. But with that said, from week to week you still don't know, and I would have, for instance the lab I taught last semester and the labs I taught, we alternated weeks so that we could have more space per student. While that sounds really easy and straightforward, we would have students who were in quarantine, would miss their week and so they wanted to come the other week. Or we would have students who were in quarantine and would miss lab altogether for a couple of weeks. We had students who would get sick, we had two students out of the hundred-ish students that I had, who ended up going home for the semester after they got sick and we had to come up with a completely online option for them. While you can make all the plans in the world, there's always going to be unexpected things that arise that you're going to have to make a whole new plan for. Being as flexible as possible, and being willing to change plans as you go, and kind of go where you need to go and do what needs to be done to try and provide the best possible experience for your students and make sure that they're not missing out on anything, missing out on content, missing out on hands on experience. Trying to provide them as much of the in person experience as you can under these challenging circumstances is really kind of the plan you always have in your mind, and every iteration of that you go through during the semester to try and accomplish that can be certainly very challenging.

TZB: Well, thank you so much. Is there anything else you feel we have not touched on that you would like to tell us?

MR: I think the only thing I would add to our conversation, and it was in one of the questions you sent me, was this idea, this role of women in science. I think that it can certainly be tough. I'm fortunate that I had very strong role models growing up. One of the reasons that I got into the outreach and things that I do is that I think it's important for girls to see that not everybody is a stereotypical scientist. Even grade school teachers have started doing a much better job of kind of promoting diversity in science. It's not even just men and women but for the longest time when you asked a elementary school student what a scientist looked like, it was a crotchety old white man in a lab coat. I like that I am none of that. I like to think that I'm energetic and fun and I'm certainly not an old man. So I think just helping kids see that scientists can look very different, that we can be very diverse I think is important, really important. It's something that I'm very passionate about. I also think that looking at the role of women in science can be really challenging also because, even though it's getting better and better and better, women tend to be the primary caregivers, they tend to be the people who are raising the family, we deal with maternity leave, we deal with all of these things that men don't have to deal with. Some of them choose to, which we applaud. But, we have additional challenges. It's really important for us, as a woman in science to show young girls, whether it's elementary school or high school or college women that you can do it all, it just takes planning. Even when things don't necessarily happen the way you expect them to, it's still possible. I very distinctly remember having a

conversation when I was teaching my very first year at Winston Salem State when I was teaching, there was a girl in the lab, we were in a teaching lab, and we had done a lab experiment and we sat down, probably 10 or 15 of us, had sat down after lab around the lab tables to work on reviewing some material for an upcoming test, because we had some extra time. The group got a little smaller and a little smaller over time as folks had to leave, but I ended up having a really, what I see as having a really important conversation, and hopefully a life changing conversation for this girl about the ability to have a family and be in science and have a job. She was concerned because she knew somebody who had gotten pregnant in college and was worried about them having to drop out. You don't have to. That's not life any more. You can certainly go to college and have children and still do well and still have a career and all of that. I think it's so important for women to be very open with their students about their family life, so students can see that. I've had tons of conversations with female advisees of mine about the whole work/life balance, not only work/life balance in life in general but family work/balance also. Because they're concerned about those things. I really wish that I'd had more advice as a college student about that and about how to manage those things.

TZB: I really don't think you're alone in that. For a lot of these interviews, the number one topic is always childcare.

MR: Yes it's so hard. Very fortunately for me, my spouse has a very flexible job in which he is able to stay home with children if they're sick or whatever or I have to teach. But teaching also allows the flexibility, other than that hour and a half I have class, if I need to be home, I can be. Not every day, but if my child's sick I can go. I think just really having those conversations and keeping that conversation going amongst the professional community is so important so that women don't feel like they're not able to take care of their children because of their job. Or they're not able to have children because of their job. I had two children during graduate school and one at the end of my post doc, and while there were certainly challenging times, my research advisors worked with me. I worked remotely during a short time in graduate school after each of my children was born. They were wonderful to allow me to do that and to give me the flexibility to do that. Having bosses like that in this world is really important.

TZB: I agree completely. Thank you so much for your insight.