



***Practical Significance* | Episode 5: What a Year! Celebrating the Class of 2021**

Donna: Welcome everyone to *Practical Significance*. We're excited to be celebrating graduation season. When Ron and I were faculty, I know that we both really enjoyed going to commencement. So, we are delighted to be able to have a conversation with three students who are finishing up at least one stage of their academic career. And to get started. I'm going to turn it over to Sallie, Emma, and Ruby to ask them to introduce themselves. And so, Sallie, I'll start with you.

Sallie: Hi, I'm Sallie. So, I'm currently a second-year statistics candidate at New York university and I'm graduating this May.

Donna: That's great, Sallie. Welcome and Emma. I'll go to you.

Emma: Thanks Donna. Hi, I'm Emma. I am originally from the Bay area. I am a current senior at Pomona college pursuing my Bachelor of Arts and mathematics with an emphasis in statistics.

Donna: Great. And Ruby, please tell us a little bit about yourself.

Ruby: Hello everyone. My name is Ruby and I'm a second year master's student at NYU School of Global Public Health. I got my bachelor's degree in biochemistry and math. Also, it is my greatest honor to join the podcast today.

Donna: Well, we are absolutely delighted to have you all with us and look forward to talking to you about your experiences. And I guess I'll start with a question about what's next? And Ruby, I'll start with you. So, once you finish up the master's program, what's next for you?

Ruby: Sure. So, during my time learning biostatistics, I found my passion. So, I have decided to pursue a higher degree to learn more about statistics in the application of public health from a theoretical perspective. So, I'm going to start my PhD degree in biostatistics at NYU, this coming fall.

Donna: Well, that is super exciting. And we look forward to having you back in a few years on the podcast when you finish your PhD. So, Sallie, what about you? What's next for you?

Sallie: I'm currently looking for a job; I'm in the job market. I just hope to continue doing research. I'm really interested in research in mental health. So hopefully something around that topic would be great for me.

Donna: Okay. So, all the *Practical Significance* listeners, note to self, Sallie is looking for a job. So that's great. And what about you, Emma?

Emma: I'm going to be moving to Santa Monica with my little puppy Friday, and I'm going to be working for ZipRecruiter as a statistical data analyst. So, I'm super excited for the California sun and getting to know all my awesome coworkers there.

Donna: Yeah. That seems like a real hardship moving to Santa Monica, but I think you'll bear up under that stress.

Emma: I think so, too.

Ron: All that sounds great. So, you've been looking ahead. We're going to ask you to look back; if you happen to have a flux capacitor handy, you could go back in time and tell your past-self something that you have learned, but we don't have access to a flux capacitor or the 1.2 gigawatts of energy that they need. So, if you could pass along some advice about what you know now that you wish you knew when you started along to folks who are about to start college or graduate school—whichever is appropriate for you, what advice would you pass along? And I'll just go right back to Emma first.

Emma: Great. Yeah, I think there's so many things that I wish I knew, um. From a logistical perspective with college, but I think the biggest thing is that before students and we really are at our foundation humans, and I think through college and through the rigorous coursework, we can forget that we really do need to take care of ourselves on a more personal level in order to bring our best selves to school each day. And I think being on campus with all our classmates, being there for each other and showing up for one another in times of need. And, then when you are in need having that same care from your classmates. I think that's the biggest thing that I've learned throughout college. And my classmates are truly who helped me get through college, so thanks.

Ron: Okay. That's very much appreciated. Ruby. What do you think?

Ruby: Yeah, so I definitely believe what Emma said is really important, I echo that. And the other thing I found really important are the valuable opportunities, but also think about what your real interest is. So, I am a pretty ambitious person and coming from a non-stats background from a bachelor's degree, I really want to maximize what I can learn through my master's degree. So, I always practiced being involved in various projects. And these projects definitely helped me learn a lot more outside of the classroom, but also the process of applying class material to real-world application. So, to define my understanding of statistics, but also learning how to find your real interest and to say, "No," at the appropriate occasion is hard and still something I'm slowly picking up in progress after exposed to a lot of projects.

And finally, start the sense of understanding what is the real thing I want to do. What I want to pursue the rest of my life. So doing a lot of things simultaneously can improve the variety, but I think that is also important too. So, I wish I knew these ideas of tips of participating in projects earlier. So, I can devote one of my favorite things to do earlier in my master degree.

Ron: Thanks, Ruby. It sounds like you've gotten some great experiences to help you as you go forward as well. And Sallie, I'd like to turn to you.

Sallie: Yeah. Great question. So, I would say to reach out, reach out to your network, even if you don't have a network, just reach out, reach out to your professors, your academic advisors, classmates, your peers, even, you know, a professional in the field that you hope to get into.

I can understand one's hesitation. So, for example, I'm not the most outgoing person. I'm a little bit shy so reaching out, asking for help, can be a little bit intimidating for me at times, but I can really only benefit from saying, "Hey, I need your input." I need your help with something. And even if it's something small, like asking a peer about a class they've taken before, people want to help you and they want to help you succeed. And especially being in a grad program or an undergrad program but can get hard at times and it can get tough. And I think that you don't need to feel like you're going through it alone. And there are always people there who are willing to help, but all you need is to ask.

Donna: Well, that's fantastic advice. I'm just like completely amazed that you all at this early part in your career have thought through all this good advice. So, thanks for sharing it. I'm going to stay with the reflection theme a little bit and ask you to think about some favorites from your recent academic experiences. And, that is, I'd like to know about a favorite course. And I'd like to know about a favorite memory from the last couple of years or from the beginning of your experience. And, Sallie, I'll start with you.

Sallie: So, my favorite course, I will have to bring it down to two courses. One of them is called "psychometrics." It's just about measures and scales when you're trying to validate them. That was my favorite just because it was so different than what I've done before. So, I just thought it was interesting and it was new. And you know, my program, we do a lot of models and a lot of regression and it was just different than that. So, it was nice to kind of learn something new. My second favorite course is a course I'm actually taking right now. So, it's analysis of epidemiology data, but it's using a program called SAS. And the reason I really love this class is before I took this class, I hated the SAS program. I just didn't like anything about it actually, though taking this class is my favorite right now.

And then my favorite memory generally overall, I would say just going to school at New York University. So, our unofficial campus green is Washington Square Park. It was always nice every spring. Like it would seem like the world was coming back alive. You know, Washington Square Park would be filled with people and residents and NYU students and everyone was coming out of hibernation. I'm also not a winter person at all. So, it was nice to really seem like everything was kind of like alive and everyone was so happy. This is a good memory.

So, the lab that I work in right now, I've been working there since undergrad been there for about three, four years now. And it's been really nice to work my way up to graduate research assistant, which is my position right now.. And I continually reached that next step. So, in undergrad, I can really only do literature reviews because I didn't have any hard technical skills yet. And then in my first-year master's program, I remember I received my first assignment, or I was actually using stats programs. And I was just over the moon. It was only like a simple data cleaning and management assignment.

But to me it just represented, staying on this biostatistics path and finally feeling like I was going in the right direction, especially career wise. So, I remember I was at a concert for my favorite singer, but when I got this email, this assignment, I completely forgot that it was at the concert. So, I was just so focused on this email to new assignment. And that just has always been a good memory for me. And whenever I'm kind of going through it, going through something tough or a tough assignment, I always think back at that. And we just remember to stay on this path because, you know, I love it. And I know it's, for me.

Donna: That's a fantastic memory, but I just must ask what was the concert?

Sallie: The singer said, Sabrina Claudio, my favorite singer ever. And I was waiting forever to finally see it. And it was a great concert. And of course, biostatistics is going to win out.

Donna: No doubt. What about you, Emma?

Emma: Yeah, so I'm in my senior year right now. And so, the big thing of senior year is writing your thesis. And I wrote my thesis on propensity score, estimation techniques and non-parametric alternatives to do so. And that process of writing my thesis was definitely the most challenging and yet rewarding class or academic endeavor that I've embarked on and just turned in yesterday. So, I'm super

excited about, but I think beyond just the process and the challenge of writing my thesis, the relationship that I cultivated with my advisor, who's Jo Harden, is one of the most special relationships to me.

I felt so seen beyond the academic setting. And I think that's something special that you don't always get in college and you don't always get with professors. And interestingly, I definitely think the Zoom atmosphere and the social isolation had a lot to do with us, just being able to connect on a deeper level than just mathematics, which was fantastic. And I'm so grateful for her in that process.

Aside from academics, I am a huge proponent of staying active and a couple of summers ago, I biked across the country. So, from Portsmouth, New Hampshire to Bellingham Washington, and that was one of the most special experiences in my life that left a mark on me as a person. Definitely. There were no worries in the world other than getting from point A to point B each day, nowhere to be. And that ability to live in the moment and to take in what's right in front of you, rather than looking to the future is how I try and live my life.

And I'm super excited to bring that quality with me as I embark on my professional career.

Donna: Well, that's fantastic. Are you still cycling a lot?

Emma: Yeah. I love to do triathlons. So, and so now that we're hopefully approaching a new normal and the race races are starting to be scheduled again. I always love the Tahoe races, so hoping to get up there and in Santa Monica, there's a huge triathlon club and a triathlon that I'm super excited to get involved with as soon as I get down there. So yeah, very cool.

Donna: That's great. Well Ruby, what about you? Favorite course and memory from grad school?

Ruby: So, one of my favorite stats classes is data management and statistical computing. I took in my first semester. I realized data management and data literacy are really important skills for any people working in statistical field. When working on an internship or project, you surprisingly find out that not everyone can organize and interpret data efficiently. I feel so fortunate to learn about it. And, after taking this class, I was involved in this data literacy training program for minority groups, which is a free eight-week session. Like we recruit college students and general public who are taking the classes for free. And both of these are management classes and the training program. I worked with Dr. Melody Goodman and I built a real connection with her. And then she inspired me a lot by helping minority groups to learn more about data. And it is really touching. And you see a lot of positive feedback from the participants telling us after they received their certificates in data literacy, they were confident and have the ability to use the data and to tell a story from data accurately.

And just to even just look at the news about COVID, looking at those bar charts and looking at those data visualizations, they can tell like what sets the right information carry out from those things. And the other memory I would add is I work in this lab and we have the Slack channel and there's one channel called "Lab Love" and people just share their paths and pictures in there. And I found that really supportive during COVID. We can still communicate online by sharing these tiny moments in our life every day and get inspired from that. I'm going to get my puppy this summer, and I'm really excited about it. And hopefully we'll be good PhD by the next five years or 10 years.

Donna: Well, folks who know me Ruby know that I'm a real dog lover. So, I will definitely look forward to seeing pictures of that new puppy and learning about how you grow together with the new addition to your family.

Ruby: Definitely I'll keep you updated.

Donna: Cool. Very cool. Well, Sallie, Emma, Ruby—it has just been great to talk with. I absolutely know that you are going to have wonderful lives ahead. You've been just so thoughtful about your past that there's just no doubt in my mind. And I want to say best of luck and thank you for joining us on *Practical Significance*.

It's been great to talk with you and Ron and I plan on continuing this conversation with Amy Hogan and Miles Ott and getting the faculty perspective on the graduation season.

Segment with Miles Ott and Amy Hogan

Donna: We are really excited to have two colleagues here to talk about what was we suspect has been just an incredibly challenging year, but we hope to hear a little bit about that and hope to talk a little about graduation advice. And I'm going to start by asking my colleagues to introduce themselves. So, Amy, I'll turn it over to you first. And could you tell our listeners a little bit about who you are and what you do?

Amy: Hi everybody. I'm Amy Hogan. I teach math and statistics at Brooklyn Technical High School in New York City. We are a specialized public high school. And I am an ASA fellow for the Data Science and Statistics Education Program.

Donna: Thanks Amy! And Miles? Would you introduce yourself to our listeners?

Miles: Sure. I'm happy . Hi, I'm Miles. I just got tenure at Smith College in the Statistics and Data Science Program. So, I guess that means I'm an associate professor, (which feels weird to say that) at Smith college in North Hampton, Massachusetts. And I'm also on the ASA Anti-Racism Task Force and the Development Committee.

Donna: Both Miles and Amy are active on Twitter. And I always look forward to seeing your posts. I must admit Miles. I love it when you share your dog's adventures at doggy daycare. So, I'll give our listeners a heads up that they can look for cute dog pictures. Anyway, we know that this year teaching during the pandemic was not easy, but I suspect that you tried some things that actually worked and that you might continue to use. And so, Amy starting with you, did you learn something about teaching that's going to inform your practice in upcoming years?

Amy: You know, it's fortunate and unfortunate that it did. I think there are a couple of things that helped me sort of think about teaching in general. So, you know, teachers, especially in a high school, you're always preparing for what happens when things don't go well. Right? So, keeping that reflective practice and so it's little things. It's technology, it's student understanding and things like that. And boy, did we really get that this year. So, what happens when the power goes out or you get bumped off of your zoom or you have a hands-on activity that now needs to be transformed into something that can be done online. And so having the flexibility, I learned a lot about like what I would need to do to become a little bit more flexible and giving everybody a little grace when things don't go well.

So, I've talked about this before. With a student who can't make it to class for whatever reason, like what would you want them to have as a result? And so I've been doing things like posting **annotated**, student examples. So, I'll collect work from and, make sure that it's readable and then just include some notes. And I do this as a post-lesson resource for my students. I'll definitely do that again. I think that's a great practice. And then the other thing is, how do you measure student engagement or student understanding. It's going to change because now that we have this ability to path sort of an alternative way to run a classroom, like how do you measure what they understood? And so, for example, last year, I really struggled with this. Do we give a final, do we not give a final?

And I decided that the students deserved a chance to demonstrate some understanding and have closure, right? So, thinking about the final as a way to close a course, there was a content portion. And then there was also a reflective portion. I got this idea from a teacher who teaches at Harvey Mudd. And he said, "how do we have an exam in a pandemic?" And so, we had two portions, the content, we had some choices. And then we had a reflective portion where students could talk about things that they gleaned from the course or mistakes that they made, or, they had a chance to think about the role of what they learned in their future. And I really liked that. I thought that was a really great way to measure their understanding that was not traditional, but also really important. Like how are you going to use this potentially later in your life? Those are things that I definitely want to take away when we go back to normal teaching.

Donna: That's really fascinating. So, I hope at some point you can share some of those reflections because I'm sure we would all learn a lot from them. So, Miles, I'll turn it over to you. And how did teaching during the pandemic inform your practice looking forward?

Miles: I would say that there's two things that I really tried to focus on. And the first being that I tried to make, the ways that I delivered content and information have as many channels available to the students as possible, because it's just harder to check in with students about what is, and what isn't working for them. It's really hard to get a direct read on them, like usually in the classroom, I look in their faces and I can kind of glean how it's going for them, or I can probe them and ask them, follow-up questions, but it's a lot harder to do that online on Zoom. So, what I proactively try to do now is to make the content available in many different forms. So, they have access to my slides. They have a prerecorded video that they watch at the start of class.

They could watch it earlier if they want to and give themselves more time. I have note sheets for them where I have the lecture outlined so they can fill it in with their notes. We have questions, of course, they get the recording, they have access to the code that I use to make my lecture and all those things together. I'm just giving them access to all these things so that if one way of delivery, isn't hitting for them, maybe some of the other ways will work. And then the other thing that I've really been trying to do is just to be much more flexible about everybody's life situation. So, I know that for me, teaching online is so much harder and I feel very challenged by it and frustrated by it. And it's not my ideal way of being. And I know that the students feel similarly about learning online at times.

And so, there are so many life situations going on right now with COVID and maybe you're taking classes from home, we're in a different time zone, that I'm just giving students all sorts of leeway and free passes to turn things in when it makes sense for them and things like that. So that's been really helpful. I think in, I guess the last thing that I've done is I've really tried to emphasize for them that when I'm giving a test or they're working on a project that I want this to be a time for them to shine and I'm

rooting for their success and that I want them to get, to show me what they've learned and as like a, a cap to what all the work that they've put in and really been trying to reframe tests and projects in that way. Because I think that students are so rundown right now and to frame teaching and learning and tests as like, you need to prove to me that you understand this it's, it just has a different flavor than like, I want you to get to show me what you've learned.

And I like so that you can get my feedback on it and you can feel proud of it. I think that's been a really helpful lens.

Ron: Thank you so much Miles and Amy, so many interesting things going on and your students are fortunate that you are so thoughtful about how to help them. And speaking of helping them, I really have no idea how graduation commencements are just around the corner. Probably over the years, you have accumulated some advice that you offer to your students at this time of year. So, I'm sure our podcast listeners would like to know what that is. Let's start with you, Miles.

Miles: Sure. So, my advice to students in general is to pay attention to the context of every situation. So that can apply in a lot of different ways. That's thinking about the context in which your data are collected, so that as you think about how you can use that data and the conclusions you make from that data are appropriate. When you're giving a presentation, thinking about the context where you're giving a presentation in so that you are giving the information that needs to be given so that people understand what you're talking about. But then also thinking about the context of the situations that you get into for your future jobs, making sure that you're in an environment that is supportive of you and who you are as a person is much more important than the prestige of any job. So, that's my very broad overarching answer for like what advice I would give to students.

Ron: That's great advice Miles. Thanks. And, and Amy, your students are a few years younger. What are some the things that you tell them?

Amy: You know, I really struggled with like what kind of advice I give my students. I like to give my students basic life advice, like wear sunscreen; when you get to college, call your parents, you know, basic things like that. That just seemed good to say out loud. But I think overall, one of the things I like to impress upon my students is that when they get to my course, a lot of times, they have no idea of really what statistics is, even though they've signed up for this course and they've signed up for an AP level of statistics, they really don't always understand what that entails. And so, it's a very strange litmus test because I have students that are great math students and stats is a struggle, or I have students who struggled with math and then stats kind of goes smoothly for them.

And I never know how it's going to work. And then of course all the variability between, but what ends up happening is there's a little bit of a lesson about it's hard and you can do hard things. And these are tools that you can use to do those hard things. But also, once you've done this, it should give you an idea that you can do challenging things because when they get to college, they're going to have, you know, classes or even situations that are going to be challenging to them. And they aren't always going to have the grown-up, to help them through it. They're going to have to grapple with what that means. And so sometimes that lesson is really something that they learn in my class, because if it's a challenge and for most of the students, at some point they're going to get challenged. The lesson really is, oh yeah, I can do hard things. Right. And so, you know, when they get to that place in their lives, where they're faced

with challenges, maybe they have an understanding hopefully that they can take on that challenge somewhere. Very philosophical, I guess. But I love that.

Ron: That's such great advice and I'm sure that all the caregivers and parents of your students really appreciate that you put in a plug for calling home as well!

Amy: Some of my students, they live at home when they go to college or they have an experience afterwards, but just like, don't forget the connections there. Yeah. True life advice by Mrs. Hogan.

Donna: Right. Absolutely wonderful. I feel like asking about your favorite course or a favorite experience is sort of like asking me to pick my favorite dog, but I'm going to go ahead and ask it anyway. Maybe Amy, I'll start with you. Do you have a favorite course that you would like to talk to us about? And did you have an amazing experience over the last school year that, that you could share with us?

Amy: I do agree that choosing is very hard. I'm not going to choose. I'm really blessed because I have the most ideal program. As an educator at the high school level, I teach four sections of AP statistics. And then I have one section of an elective math course where I don't have any tests. I don't have any grading. We just do math for, for fun. We do math contests; we do math enrichment. And this year it's been asynchronous. So, it's been a little bit of a challenge, but I get to pick what I want to have the students explore. For example, one week I gave them a link to an online spiral graph. I don't know if you know what that is, where you have a way to make like a beautiful design and it is very mathematical, but just taking time to do something that's beautiful.

I don't have to worry about curriculum. And then on the flip side, I have the AP statistics course in which I do have a very regimented curriculum, but I do have some flexibility with how I implement that curriculum. And I try to make it as engaging and fun for the students. And I really do love teaching stats. I just feel like it's a life course. It's not ever in a way that I feel like this isn't interesting, or this isn't applicable. I can always find something that will be connected to the outside world. And especially with COVID. I mean, there is no lacking data or stories that involve some sort of statistical thinking. And so, a favorite experience really has been just being able to share really, I think empowering content to my students at a time when things are uncertain. Right. And so, it's really interesting that one of the themes that I teach about is uncertainty, for example. And so, it's got a direct meaning and then sort of this indirect meaning. So, for both courses, I feel very blessed to be able to teach things that I think are going to give value to these students in a time that is very, very stressful. And also, when I say uncertainty, like even what's going to happen next week.

Donna: The math seminar course sounds fantastic. And I definitely look forward to following up with you and learning more about the challenges that you and your students engage in.

Miles. I'm going to guess that earning tenure and promotion was an outstanding experience, but I also know that you're writing a book with some wonderful collaborators. So, how about telling us what was the great experience and what's your favorite course to teach?

Miles: Well, I agree with Amy, it's really hard to pick a favorite course. I've taught Intro Stats, I think I counted 24 different times in my eight years of being a professor so far, but I've also taught like Math Sets Probability, but I'm not going to list all the classes, but I really love teaching Intro Stats. There's something so special about students coming in and maybe feeling a little bit nervous and helping them realize that, like, even though that they might be nervous, they can still learn all these new things, learn

how to think about data in different ways and find out how applicable it is. And I think that Into Stats for me is like the one semester where you can see the most growth in students. And they're so excited about it at the end of the semester. This is like their world has opened up and going on that journey with them and getting to witness them as they grow, and kind of help facilitate that is amazing every time.

So I love, love Into Stats. This year, I got to teach regression in data analysis. And then also I'm helping with the capstone. My favorite class to teach this year was the Bayesian statistics in class. It was my first time teaching this class and also my first time teaching a class using a textbook that I am helping to write along with Alicia Johnson and Mina Doshi. And so, we're in the process of writing it. And the students really liked getting to be in on the book writing process. And I would show them my book down files and that they got to give feedback and see changes happen real time.

But also, something really cool about teaching that class was that it's a whole different paradigm of thinking. And once they realized that this was a different way of thinking, and they started integrating that way of thinking into their everyday ways of making decisions. It was really awesome to see, and they thrive. Every time you can see students do something that they weren't able to do before. It just feels amazing. So that's always a highlight

Donna: Well Miles and Amy, it has been great to talk with you. And we thank you so much for sharing all your insights from this past year and your experiences. And now as tradition demands, I'll turn it over to my colleague, Ron, to share his "Top 10."

Ron: Thank you, Donna. And it's been such a delight on this podcast to talk to students and faculty at this point in the year. And of course, the wonderful students that we talk to are finishing up this part of their educational career, but not everyone is quite so fortunate right now.

So how do you know if maybe you weren't going to graduate just yet? Well, *Practical Significance* is here to help with the top 10 signs you are not going to graduate this semester. Any of these might be a signal.

#10: You're in your fifth year and your major is still listed as undecided.

#9: The "C" you are getting in biology is actually raising your GPA.

#8: Your cap and gown order came back with just a "Better Luck Next Time" card.

#7: The professor you asked for a letter of reference said, "Let's not get ahead of ourselves."

Donna: Ooh, that's harsh.

#6: The server crashes every time you try to run a degree audit number.

#5: Your academic advisor says not to think of it as taking an extra year, but as a bonus senior year.

#4: Your parents, your friends, and even your significant other have stopped asking when you are going to graduate.

#3: On the door to your dorm room, the university has placed a permanent sign with your name on it.

#2: The Latin honor you qualify for is *Iterum Conare*, which Google translates to "Please try again."

#1: You realize the dream you've been having about signing up for classes, but you forgot to attend them. And now it's the final. It's not a dream!

Back to you, Donna.

Donna: Thanks Ron. I know that those are illuminating top 10 and I'm just confident that our listeners can not relate at all to any of those, especially that dream. Right? Well, anyway, everyone, thanks so much for listening to *Practical Significance* podcast. We look forward to catching up with you next month and as always, please follow us on Twitter and share your show recommendations. We look forward to hearing from you. Bye, everyone.