UC Santa Cruz

Publishing Tips Series Season 3

Title

S3, Episode 3 - Communicating Science to Broader Audiences with Stella Mayerhoff

Permalink

https://escholarship.org/uc/item/94f321hr

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Publication Date

2026-10-27

Supplemental Material

https://escholarship.org/uc/item/94f321hr#supplemental

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Publishing Tips Season 3, Episode 3: Communicating science to broader audiences with Stella Mayerhoff

Martha: This is season three of the UCSC Publishing Tips podcast. I am your host, Martha Stuit, she/her pronouns, the scholarly communication librarian here at the University of California, Santa Cruz. This third season is a little different from the previous two seasons. Instead of answering common questions about publishing from graduate students and candidates, this season offers interviews of graduate students and postdocs themselves, including master's students and PhD students or candidates and postdoctoral researchers, and we talk about their publishing experiences.

These interviews were conducted in the spring of 2026. The aim is to share stories so that graduate authors may learn about publishing from each other. These interviews span eight departments at UCSC, so there is a range of disciplines included. Keep in mind that even if an author interview is not about your area of study, there is still something to learn about the publishing process and the effort and feelings that go along with it from these peer stories.

This episode's interviewee is Stella Mayerhoff, pronouns she/her, who is a student in the Science Communication Program at UCSC, a one-year program, and prior to that, she studied in a PhD program. Our interview covers Stella's journey of becoming interested in science communication and how she thinks about communicating scientific concepts to a broader audience outside of academic literature.

We start by talking about how Stella got into this field and then discuss some examples of her science communication work.

Stella: Hi, my name is Stella Mayerhoff. I use she/her pronouns, and I am a student in the UC Santa Cruz Science Communication Master's program, and it's a one-year program. I study science communication, but I have a background working as a scientist, and now I've pivoted into science communication.

Martha: Great. Can I ask what area you studied in science?

Stella: Sure. My background is in psychology and specifically cognitive science, so I did research doing comparative studies between humans and non-human primates, including several monkey species.

Martha: Oh, great. Sounds fascinating .

Stella: It's definitely an interesting area, I think, but I'm admittedly a, a bit biased.

Martha: Mm-hmm. So we're here today to talk about publishing, and so I thought I'd start off by asking what tales from your publishing journey would you like to share with us?

Stella: Sure. Well, I certainly have some experience when it comes to what I would say is more standard academic publishing when it comes to writing encyclopedia articles and research articles that I've been a part of, whether that I've been a first author or co-author on those research articles.

But I also have a background doing science communication work, and specifically as a PhD student, I started to veer into science communication, and I had an assistantship when I was at Georgia State University, where I was the research news writer for a year for the College of Arts and Sciences. And so it was my job to do what we call institutional journalism, where I was basically reporting on the science that was happening by faculty members at Georgia State University and conveying that information in a way that broad audiences could understand and people that don't necessarily have a scientific background.

Martha: So is that how you would define science communication, as describing scientific concepts so that a broader audience would understand? Could you say a little bit more about science communication?

Stella: Sure. I think that the beauty of science communication is that it is so broad and encompasses so many different facets of communication.

So certainly it can be things such as institutional journalism like I just spoke about. But truly, I think that science communication, to put it very simply , is just communicating science in any sort of way. And so I've been part of science communication organizations that pair scientists with artists, and artists convey scientific research through their work.

And so it can really encompass so many different things. And I think generally we do think of it as a way to convey and communicate science in a way that is accessible and understandable from the perspective of broad audiences. But I think we also do science communication between scientists as well, and so it really can be quite a number of different things and take a lot of different forms.

Martha: Yeah. So diving a little bit deeper into science communication, how do you turn a scientific concept or research study into another format or science communication?

Stella: Well, I think when it comes to writing and coming from the perspective of a scientist, it can actually be quite hard to communicate your own science, specifically when you're speaking to people that don't have the same background as you do.

And it's easy to forget that your baseline knowledge of a field is not the same as everyone else's, and you're potentially an expert in an area, and so you kind of have to think back to what it was like to try to understand this information that you now know like the back of your hand. So I think that the first step in addressing that is to acknowledge that you are

trying to speak to people and communicate to people who don't have that same background, and that's certainly not to say that your audience is stupid.

I think that that's something that scientists can fall into a trap with a little bit, uh, depending on the situation. But your job as a science communicator is to basically assume that your, your audience is intelligent and knowledgeable, but they just don't have the specific information, and so you have to find a way to convey that information that's relatable and something that they can comprehend with the information that they have already.

And so things like analogies are really helpful.

Martha: I wonder if it would be helpful to talk about an example of a way that you've done this.

Stella: So one example of this kind of translation of, of science that I did while I was still doing my research at Georgia State University was through something called Three Minute Thesis.

There's a different version of it here at UC Santa Cruz, I know. And the challenge of that is that you have three minutes to talk about your entire thesis or dissertation, and with only one slide that can't have any transitions or anything. And so you're talking to a whole group of people, an audience that doesn't have the same background as you do, and you have to be very concise and clear.

And it's certainly a challenge, especially as a scientist, when you've poured your blood, sweat, and tears into this research to really compact it to that level. And for me, I have been studying something called cognitive offloading, and cognitive offloading is essentially when you do some sort of initial effort to reduce the amount of cognitive effort needed for a task.

So common examples would be to take down notes. So you're writing down notes, you're putting some initial effort to writing notes, but that means that you don't have to rely on your memory to remember it later on. And we do this all the time. We use a bookmark. Again, you don't have to remember what page you're on.

We make grocery lists. We save things in our phone. And so in my presentation that I gave for Three Minute Thesis, I spoke about how the judges were taking notes. Because in that moment, they were taking down notes, and kind of to the amusement of my audience, I explained that it was actually really great because the judges could then forget everything that I was saying in that moment, and that was a positive thing because it meant they could give their full attention to the other speakers that were after me, rather than trying to remember everything that they liked or didn't like about what I was saying.

And so that's a way that I think is conveying the information in a way that's really accessible, and I think part of what I love the most about science communication is helping people realize that so much of science is just everywhere around us in things that we don't realize.

So connecting audiences to science in a way that they can relate to from their first-hand experiences I think is really effective.

That said, that's not always super possible. It's not like you can say, "Oh, so that last time that you checked out a star in outer space..." You know, there's, there's certain areas it's easier to do that with. But for those cases, analogies still work really, really great. I- I wrote an article a couple years ago about the heavy ion collider and explained that the machine looked like a hula hoop, and I was very lucky that the source that I was speaking to, the scientist, had a great analogy of his own where he talked about the precision that was needed.

But it was like sending two needles, one from Africa and one from the United States, to hit in the middle. That's the level of precision that it takes. And so these types of analogies or visualizations are really, really compelling and can help audiences understand the scope of something or the importance, and just kind of follow you along as you take them on this journey to understand the research that you're talking about.

Martha: That brings me to a question that I'm curious about with analogies. I'm curious how you go about coming up with an analogy.

Stella: Yeah. I think that there are certainly different concepts that are easier to come up with analogies for than others. For me personally, I really rely on analogies, and I think what, what helps me a lot is that I- I have to have- ask a lot of questions about visualization.

So I have something called aphantasia, so I don't have visual imagery. I can't mentally imagine something in my mind and kind of see it floating around my mind in a way that, so I hear, most people can do. Um, so, so for me, I think because I have a challenge in that, I have to rely a little bit on these things because I can't visualize them as well.

And so for me, it comes a little bit out of necessity, but I think that translates well into readers who may or may not also have aphantasia but are also just trying to understand something. And so I think in trying to understand something conceptually, those analogies are kind of my stand-in for the visualizations that I, I can't really do.

And so I think it just comes down to being creative, but I also think that it can be really helpful to ask scientists what their analogies have been before because quite often, you know, these are, they're experts in their field and so they've explained this time and time again to different audiences most likely.

And so asking a, a scientist what they would say, how they explain it to their neighbor, how they explain it to their grandmother, often scientists come up with the great analogies like the two different needles that I mentioned before. That was something that the scientist came up with. So I think it can be a kind of an interesting partnership and then explaining, oh, so is it like the hula hoop, for example, and then the scientist can confirm, oh yeah, it actually is kind of like that.

And so it can become a really cool back and forth creative process. And then sometimes you just think of a, a fun way to write about it and, um, it, it works out. So it, it can come from a, a few different places.

Martha: Yeah. I think analogies have a lot of power when you find the one that is fitting.

Stella: Mm-hmm.

Martha: So I'm thinking about research articles in contrast to stories or things in mainstream media. And for someone who hasn't done this before with their own research, I'm curious where you would recommend that they start for thinking about communicating their research to someone else.

Stella: Yeah. I think that it can be, uh, really tempting to kind of look at your research article and just literally try to translate it into quote unquote "simpler speak" or whatever you wanna call it.

But really, I think a lot of scientists don't realize they already do this all of the time. They're constantly doing this. When they come home to their families or they talk to a colleague who's just outside of their field of research, they're constantly talking about the, the work that they're doing.

And so honestly, I think that a great start is just to catch yourself as you're talking to other scientists or, uh, a neighbor or a relative or a friend because, again, we're doing this all of the time, and we just don't realize it, and I think sometimes for whatever reason we don't see it necessarily as valid science communication because it's not published in something or it's not written down or whatever.

But the reality is that we do this all of the time. If we run into the chair of our department and we start talking about our science, and they might have a different area of research, and so we have to modify how we're talking about it to, to each person we talk about. We, we do this without even realizing I think quite often.

Different people have different approaches, but even just talking about it to someone or talking about it out loud in the way that you would talk about your research to someone and using Microsoft Dictate, I bet you would get, like, 75% of the way there just, just really talking about it in the way that we already do it.

And I think that practicing having those conversations can also be really helpful because you can get feedback hopefully of, okay, what did I say that you're like, "Oh, I actually don't quite know what that word means," or I kinda lost you in this jump from this thing to this thing. And so that can be a really great way to figure out, okay, what do I realize other people may not know?

And then what are some things that are so embedded in my own knowledge that I, I don't have the ability to recognize that maybe other people don't have that 'cause I've forgotten that I once didn't know this. The reality is that every single person on this planet, the information that we know, at one point we didn't know.

We learned every single thing, and so it's kind of a matter of how far back do you rewind? You don't have to start with the ABCs here, but we all learned at some point, and I think that's also the reason not to underestimate your readers is that everything that I've learned, I've learned, and everything my readers, you know, um, are taking in, they can also learn.

So I think we already do a lot of the science communication in ways that we don't necessarily recognize right away or at least realize is science communication. But again, trying to, to talk about it can be really helpful. And then when it comes to kind of getting into more of the nitty-gritty of different areas of the research, I think that the introduction and discussion can be really helpful.

I think certainly what you said about the results and discussion being kind of these big things of what's new, what's changed, what do we know now that we didn't before? Those are obviously going to be the very big things that we wanna pay attention to. Um, and then, you know, getting into the discussion of what does this mean?

How do we move forward with this information? But also the introduction can be really helpful both in setting up, hey, what is this about? But also giving a little bit of context because you may have this crazy cool, interesting finding, but if the reader doesn't really understand why you're doing it in the first place, I think that's often where we get this like, why are we funding this science?

And it's because we haven't set up, oh, this is actually what it can do. This is what gap it may fill in the future in the research literature. Uh, so that kind of context I think can be helpful. But I also think that I have found as a scientist going into science communication that I have to be really mindful not to stick to the order of a science, a research paper, because if you look at a news article, for example, you don't want the whole background.

You want the news first. And so that's another important part that I think is a, a solid difference in the, the formats of the two different types of publications.

Martha: I'm thinking about where researchers might use these skills. Like what are contexts in which you have found it useful to think about your work through the lens of science communication instead of through the lens of a researcher.

Stella: Mm-hmm. Yeah, I think there, there are so many different ways, kind of still somewhat inside academia, but not in research specifically. At Georgia State University as a graduate student, you can teach your own courses, and so I taught four semesters of psychology courses, and it meant that I had to very much communicate science to a different audience than my colleagues.

These are students who are undergrads and were incredible, wonderful, intelligent students and were trying to gain more information. But the way that I speak to them about these fields of psychology are very different than I'd speak to colleagues of mine. And so I got to use that all the time when I was talking to my students.

And, uh, a lot of that back and forth of, "Okay, am I explaining this clearly? Uh, are there things that I'm skipping over that I, I didn't realize that you didn't understand yet?" That was really helpful. I find it incredibly important to reach out to the public and to talk about the science that we're doing, especially so much of science is publicly funded, and for me, it feels like a responsibility as a scientist to communicate the science that's being done with our tax dollars and, and whatnot, to share that with the community at large, and to bring those people into the scientific community, and to let science spill outside of academia in the little bubble that I can sometimes sit in.

So I think that there's so many different ways that we can communicate science and so many different situations where it's, it's helpful to do that. I've noticed as well that even within academia, it's helpful to be able to kind of change the scope of your audience. So whether that's within science or speaking to broader audiences, I think it can be really helpful to be able to adjust the scope of your audience and cater what you're saying to them.

If I was presenting at a academic conference for specifically primatologists, I'm gonna have a very different talk than speaking at a conference for psychology generally. So again, I think we already kind of do it to some extent, and it's just expanding that. I've done a lot of science communication, public speaking, and presentations, and that's something that I would certainly encourage science, scientists to do more of.

There are so many different avenues to get involved, to give presentations. There's organizations that are national and international organizations. There's community opportunities, and I think that it's a really great way to bring science across the, the gap that exists sometimes between academia and, uh, the public.

Martha: How does a researcher or scholar go about developing these communication skills? What resources might they refer to, or how could they practice?

Stella: Yeah, there are definitely a lot of resources available online th- that support scientists and basically anyone trying to do science communication. Uh, there's resources such as the Open Notebook, and if you just look up science communication training or resources, you w- you will find a wealth of, of materials.

I would certainly say that the information that is out there for people that are aspiring science journalists, I think it can be a little intimidating to look at that and say, "Well, I'm, I'm not becoming a science journalist. I'm a scientist, and that's a different world." And so I, I think that that can be a little bit in- intimidating.

Even as a scientist, you can very much use those, even if it seems a little intimidating. So don't be afraid to look up those resources and dive in. Any scientist can do this type of work. I am certainly proof of that. I've, I've pivoted my career. And not to say that all scientists need to pivot their career.

We, we certainly don't want all scientists to pivot their career, but all scientists can do this type of work, and there's different avenues to get into science communication, so you can dip your toes into doing the work yourself and trying to write about the work that you're doing. You can create a blog and, and write about the work that you're doing.

Every time you write a little blurb on your personal website, you're already doing some form of that to different extents. Then also, I think that another way to get involved in science communication, if that's maybe not the route that you wanna take, is to get in touch with people that are doing institutional journalism as part of your university.

Or if you've got a funding source and they have their own communications team, reach out and talk about the research that you're doing and see if there's an interest in a story there. Newspapers are constantly looking for new stories, and I think that often I see, especially with underrepresented scientists, is that it kind of feels sometimes like, "Oh, well, if it was important enough, someone would come talk to me about it," but that's really not how journalism works quite often.

So of course there's gonna be some big breaking news things that will have journalists come in and cover, but so often journalists are trying to find a story somewhere, and we would love it if someone said, "Hey, this is what's going on." It doesn't work all the time. There are plenty of times where it doesn't work because something has been written that's kind of similar, or there's some other reason that has nothing to do with the quality or importance of science.

But I would highly, highly recommend, especially, again, for people who are underrepresented in science, to kind of market yourself in a way and say, "Hey, this is the work that I'm doing." And then sometimes I think being part of that process and being interviewed for articles can also spur some ideas about, oh, maybe this is how I could approach writing about the next story, you know, the rest- the next research article that I publish.

Martha: Yeah. Sometimes the questions that people ask you really illuminate what needs to be explained-

Stella: Mm-hmm

Martha: ... or, or what direction to go in communicating about your work, what people are interested in.

Stella: Yeah, absolutely. And, and just to see, okay, I remember I said all this in this conversation, and then look at what the article is that they wrote.

So even as we're talking right now, we'll see what you take out of this conversation.

Martha: Mm-hmm.

Stella: And that's geared towards your audience. I don't know your audience like you know your audience, and so that can be helpful to say, "Oh, here's all the information I had. Here are the things I kind of expected, but oh, it looks like actually these are the types of things that are most important to highlight."

And that can be helpful to kind of get a, a personalized view of these are the most important things about your research in a way that you might not be able to do objectively as the scientist.

Martha: I can imagine AI in some ways could be helpful with this if you wanted to use it as a tool to translate something with a lot of research jargon in it to something more understandable.

But I would also think there are some benefits of going through the process yourself. So I'm curious how you're thinking about AI in science communication.

Stella: I think first and foremost, as a scientist, you're essentially breaking new ground on information that human knowledge doesn't already have. That's, that's what your job is, is to push the boundaries of human knowledge.

There's a really wonderful illustration that someone did of the... an illustration of the PhD, and it's, it's this tiny little bubble that juts out of the, the circle of human knowledge. But that's what we're doing, is we're pushing human knowledge as scientists. And so by definition, AI doesn't know beyond human knowledge.

And so I think you're, you're selling yourself short a little bit if you're relying on AI to convey something that you are an expert in. But also, I think AI just really can't do the same job of giving feedback and knowing what someone doesn't know. I mean, if I'm trying to figure out what someone else doesn't know, I'm struggling with it because it's impossible for me to know for certain, but I can have a good guess.

AI is really not very good at saying, "Oh, I can have this reasonable expectation." And there's so many different factors in what people may know or not know, and it can't pick up on all of these things in the way that human minds can. And I just, I think that it also doesn't do a great job of coming up with these interesting analogies in the same way that human minds do.

The creativity that comes with science communication is what I think can make it so successful, and also something that really can't be replaced with AI. And then also, AI can't speak for a researcher, and that's something that gives this human component to stories.

Martha: Human component is sometimes what makes it so interesting or relatable or compelling or connected to your own community.

Stella: Mm-hmm. Something that I also didn't realize, even going into science communication, is just how broad you can go even within science communication. Yeah, and there, I, there's so many scientists who do their own scientific research and science communication at the same time, and there are people who have entire books out.

Feels like every year they have a new book out while also doing their research. Um, or there are people that are scientists who have a blog that people follow along, or there are people who write an article once every five years when they feel like there's something particularly interesting to talk about.

So there's so many different avenues. There are scientists who are artists and make art about their science. Like, there- there's just endless possibilities for the depth of what you do and also the ways that you can get involved in science communication as a scientist.

Martha: Yeah, totally. I've seen people crocheting or knitting their research results.

Stella: Mm-hmm. Yeah.

Martha: Uh, so there's just so many things-

Stella: Mm-hmm

Martha: ... as you say.

Stella: There are people that go into very, I would say, scientific writing, so writing for publications that are doing what you may typically think of as translating science for broad audiences or even to other scientists that are not in that direct field.

And then people go into journalism, and so I was a news intern for the Monterey Herald as part of this program, and that's not something that I was strictly writing about science news. But I was able to incorporate science into local news. Again, there's so many different opportunities and, and ways to go about it, but I really feel very, very fortunate that I ended up in science, especially as someone who grew up hating science and thinking that it was only, you know, mixing chemicals in a lab.

No, no shade to chemists. Uh, but for me, I, I didn't realize what science could be, and so I really love the idea of being able to bring science to life in the work that I do in the way that others did for me.

Martha: Yeah. Yeah, that is so neat. I think sometimes as kids it's hard to know what a career is really like-

Stella: Mm-hmm

Martha: despite all the things that schools or, or parents do.

Stella: Mm-hmm.

Martha: It's hard to, hard to really know- Yeah ... until you get into it.

Stella: Yeah. So I, I do really love also being able to talk about pathways into science as part of my communication, because access and diversity in science is so incredibly important. And again, that's another part of this work that I love being able to do.

And, and also to highlight people that are getting into science and highlighting underrepresented voices in science as something that is a meaningful part of this, to make it seem more, more accessible and to help people make the realizations that I'd had earlier on.

Martha: Mm-hmm. Yeah. That's, that's a really good goal.

It's keeping the door open or helping the people behind you as well.

Stella: Mm-hmm.

Martha: Yeah. So as we wrap up, uh, is there anything else you would like to share about science communication that I didn't ask about?

Stella: Um, nothing you didn't ask about, but I just, I really wanna reiterate to people that are in science and scientists that maybe think I've never written something like this before, so I can't.

There are absolutely ways for you to write about your science and to do public facing science communication, and I think that it's, it is very intimidating in a lot of ways, but it doesn't mean that you can't do it. There are people and resources available to help you with that. And again, I think a, a great starting point for someone interested in getting kind of involved is to, to talk about your research and, and mention what you're doing and something interesting that's going on to various science communicators that exist.

You know, worst case scenario, they say, "Oh, not right now," and, and you can try again later. Really advocate for yourself and speak up about the work that you're doing.

Martha: Yeah, that's a great note to end on. Thank you, Stella.

Stella: Thank you.

Martha: Great to talk with you.

Stella: You as well.

Martha: Thanks for listening. This season of Publishing Tips was produced by Daniel Story and me, Martha Stuit, with additional editing support from Isaiah Brazel and Jennessy Barba. Daniel, Isaiah, and Jennessy are all part of the University Library Center for Digital Scholarship, and we thank them for their support of this podcast.

Thank you to the Librarians Association of the University of California or LAUC for a grant that made these interviews possible.

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Thank you!