

G: Hello, and welcome to episode 4 of Writing Across Cottey. If you're new to the series, once again, the general idea of this project is to interview Cottey faculty from across the disciplines, just as a way of illustrating how writing is truly done across the curriculum—not just in English classes, not just in writing classes, but in social sciences, all across the humanities, and even in the sciences. Which brings me to today's guest. Very, very excited to have the perspective of somebody in the sciences today: Dr. Brenda Ross in chemistry. So, Dr. Ross, thank you once again for joining us today, and I would like to open with a rather broad question: what kind of writing is done in your discipline?

R: Well, in the chemistry—organic chemistry, specifically, a lot of writing occurs in the sciences in the laboratories, and that's relatively formalized writing. Still using the passive voice in a lot of our writing, strong attention to detail so that someone could reproduce the work that you have done based on what you have written when you've completed a laboratory experiment or as you've completed it. And so that's one of the important things is that you're actually writing as you go, you're not recreating afterward. And also working on the students' understanding if they're a professional in a research setting, you know, how much detail do you have to get? Because there's variability there. So different scientists might wonder, "Well, how long did you do this? What temperature did you do this?" Versus, let's say, a standard procedure like an extraction. In the beginning, the students want to write every step of an extraction, and yet [to] a professional in the field, all you have to do is say the word "extraction" and they know exactly what you mean, so. So attention to detail, clarity, passive voice, and then—right—getting a sense for what professionals do. So that's more of the laboratory part. In the lecture part of organic chemistry, I like students to mostly do their writing, strangely enough, on the exams. So I think I can really tell a lot about what students understand about the material based on, "How strongly can they describe it in writing?" And if the exams were oral, they could do it orally also, but we spend a lot of time in class, especially at the beginning of the semester, breaking down, you know, "Here's a phenomenon; now go ahead and explain it." And so making sure that the students understand, "Write down your terms. Make sure that you're not assuming that people know things that they may not know. Then go ahead and talk about other things that are important to the question, and then finally, bring those things together and give an answer to the question." So on today's exam, we were looking at the boiling point of two different chemicals and why one might have a higher boiling point than another. So we just had our first episode in class where they actually got evaluated on their ability to do that. In the health and biomedical sciences program, this is a little different because we've got a strongly professional component to that health and biomedical sciences program because it's designed for students who are going to go on either in graduate fields in medicine such as physician, veterinarian, dentistry, or people who want to go on and get an advanced degree, presumably a Ph.D., in the biomedical sciences. You know, cancer research, stem cell research, things like that. And so we need to slowly allow them to build their knowledge in that area. So in Seminar 1, we start reading journal articles related to health that are pretty general, that a lot of people could just access, and then brief summaries of those in writing at a level that they can present to their classmates, so they're also using their reading and their writing to educate themselves and to educate others. In Seminar 2, we go ahead and start looking at professional literature in chemistry, biology, more specifically more of the root of what comp—what's the word I'm looking for—what health is actually made up of when you start looking at the physical and the chemical level in the body. And in that case, they do a presentation in the class, I think with a PowerPoint, and so a fair amount of writing that

up as a long paper. And students have said that even though they really suffered during the time when they were doing it, afterward, they felt that they had learned a lot. And then in Seminar 3, we have some specific focus on getting those CV's, getting cover letters, writing essays for applications to graduate school, medical school, and those kind of things. And then finally in the capstone, doing an independent research project and then writing that up. So I think we've got a lot of different things covered here.

G: Yeah, it sounds like there's a lot of different genres represented. Different genres of writing, each of which kind of has its own genre expectations or genre conventions. And you mentioned a presentation as well as being one of the components, and I think that that is also a good example of one thing that we try to stress in our first-year writing class, which is that writing can be more than just words on a page. Writing can be more than just alphabetic text. You know, a PowerPoint presentation is an example of writing.

R: Right. Good point. Excellent.

G: Yeah, so it's important to keep in mind the different ways that writing can be done.

R: It makes me think about how you can have a PowerPoint presentation that is so busy and so crowded and everything and so small that you really can't get the point of what's being represented. Well, I think probably the same thing in your writing. You can have too much detail, too much minutiae, repeat the same thing multiple times, and by the time you get through a paragraph, you just want to set it down. You're going, "I have no idea what you just told me there, it was too much—"

G: And you know, one interesting thing that you mentioned early on in your answer was the use of the passive voice, and some of our students may find that surprising because I think they're often taught you shouldn't use the passive voice.

R: Absolutely.

G: You should use the active voice. It's clearer, it's more concise. So can you briefly explain why chemistry tends to favor the passive voice in those genres?

R: Yeah, I think it's because hypothetically, nothing that you are doing and reporting is dependent upon you. That anyone should be able to do the exact same things that you are doing and get the results that you have. So it's not so much what you're doing; it's how the chemical systems are responding to how they are handled, what is done with them. Now, I've heard that there are some differences over time, that maybe the active voice is becoming more common in literature, especially when we're talking about maybe the discussion sections. But I was definitely out of the part of, you know, "To a 300 milligram round-bottom (?) flask was added 20 grams of aspirin, a white solid..."

G: Right, right.

R: So to me what's so easy to do, the students find very difficult to do. I think, yeah, coming out of that active voice and then into the passive voice.

G: Because the focus here is on the data and the steps and the procedure, right? Not so much on the person doing them.

R: Right.

G: So you give priority to—

R: The person doing it shouldn't affect it.

G: Exactly. Very good, thank you. Why do you think it's important to be able to write well in chemistry?

R: Isn't that interesting. I have an English minor, and so I've just always loved writing. I would say an example is in graduate school, a colleague who had not done much writing apparently in his undergraduate sat down to write his dissertation and then asked me and Tony, another graduate student, to read it for him. And the first parts were miserable. You know, there's—oh, it's out of order, he's not saying what he means to say, he's kind of wrapping around the edges of it, some of the grammar was an issue, choppy sentences. But the cool thing was that I think after the first or second chapter of us making suggestions and edits, his writing got much better very quickly. So I guess, yeah, it's important because as scientists we have to communicate, and we're not always in the same room with the person. And we have to know how to communicate very specifically.

G: That really speaks to the importance of getting feedback on your writing too, which is a thing we try to stress to our students. Seek out that feedback. Get an extra set of eyes on your writing. Even if you think it's good, you know, someone else could maybe pick up on things that you, as the original writer, overlooked.

R: Right.

G: So don't be afraid to seek out that help. The Writing Center, for example, is a tremendous resource available.

R: Well, just in class today—I teach a social justice class, also—and one of the writing tutors is in that class. And the students are getting ready to write an analysis of social justice theory as it's shown in *The Handmaid's Tale*. And so different students who felt comfortable, you know, I asked if they wanted to share things that worked for them, and then the writing tutor raised her hand high and shared exactly what you just said, you know, read it aloud to yourself, read it aloud to someone else, because what may be perfectly clear in your own mind is not clear at all once you put it on a piece of paper.

G: Exactly. So what specific writing skills would you say are important for writing in chemistry?

R: Hmm. Oh, goodness. How to be specific and use technical words as appropriate. So, you know, when I teach, I do a lot of anthropomorphizing and making analogies to things that students may have connections with already. And so if you're writing to teach, I think it's important to understand where your students are at the moment and try to make those connections, because we know that that new knowledge in the brain gets built up, you know, neuron by neuron by neuron. And if there's nothing to connect it to, so if your language is too technical, the person can't learn enough. But as you're dealing with a more and more experienced audience, then it gets important to use the words that people are going to trigger on pretty quickly to understand what they mean, so chiral centers, stereogenic centers, as opposed to saying, "Well, there's this carbon with four things attached to it, and those four things with the corner of a tetrahedron, and all four of them are different." You know, that's just the long definition of what it means to have a chiral center. I think when we talk—I don't know if this is true or not—but I think when we write about things, it does help us develop our own understanding. You know, when we're working to, let's say, write about something that's technical, and then we realize, "Wait, I don't really understand what happened there, and I can tell I don't really understand what happened there because I can't write about it with any sort of clarity." I'm having a hard time separating here speaking about things and writing about things. What do you think is the difference between those two? Because I tend to think with my mouth open. And then when I go to write, I do my best to just dump everything out of my brain first and it's a (unintelligible) process, but once it's dumped, I find it very easy to work with afterward.

G: Well, it is very interesting that you say that idea that, you know, writing and speaking are both ways of using language, but they are very different skills, and they are very different activities. And, you know, this is one thing that we really try to emphasize in the first year is that that is why the reading out loud works so well—

R: Ah, ok.

G: --Is because you hear the way your language sounds. It's one thing to read your language, to read a text and engage with it that way, but it's another thing entirely to actually hear the words being said. And these are moments where maybe you can—a sentence could be perfectly grammatically correct but just not sound right. You read it out loud, and it just doesn't sound good. There's something jarring about it, there's something disorienting about it.

R: Right.

G: And that is why I think it is so important, especially when you're in that revision stage and you're taking another look at what you've done, to voice it to actually voice it yourself or to hear somebody else voice it and bring your words—bring that auditory quality to it.

R: Mhmm. I was thinking, especially like say in the laboratories, reading what someone has written, and it's not difficult to get the sequence right because you're writing as you're doing things, so you don't have to worry about sequencing things. But they know so much in their own mind what they did that they don't recognize that someone else reading it can immediately tell what's missing because they don't know enough of what they did. You know what's in your head but it doesn't always come out on the paper.

G: Yes, yes, exactly. And you mentioned earlier that the idea of audience, you know, being able to tailor your language to the audience, and if you know that your audience knows what this technical term means then maybe you can get away with it more easily than if it's a novice audience that's unfamiliar with this concept. And that is something I think that, across all four episodes of this series that we've done, that's an idea that's come up: you've got to know your audience. You've got to know what they know versus what they don't know. You need to know, "What do I need to tell them versus what can I pass on because they already understand it?"

R: What do you think about, you know, so much academic areas have so much specialized language, you know, I'll read something and there'll be these words in there, and so now I'm thinking more from a social justice perspective, but the same thing's true in chemistry. And sometimes I'll read things and I'll say, "You know, you could have said that just a little easier, that that word is so specific to this area that no one outside of this area is going to know what it means." And even though I know the information well enough that that's okay, it bothers me that we get to that point where we use such exclusionary language when I'm not sure it's necessary. But maybe it is.

G: Right, and this is actually something that's come up in my professional writing class this semester. I think that there is this mistaken idea among a lot of writers that using these big words and these long, complicated sentences makes the writing better. It makes it more impressive, it makes you sound more impressive, it makes you sound smarter. And I really try to stress that that is often not the case. It backfires. It backfires and it makes the writing less clear. And you can be the most brilliant person in the world, but if you're not clearly conveying your ideas, it's lost, lost on the audience. So, less is more, very often.

R: Yes, absolutely. Very much so.

G: Now I'm curious, Dr. Ross, what has been the most important thing that you have learned about writing in your discipline?

R: Oh, gosh. And I think—because I think back to when I took all those English lit classes in college, and I had this professor at the University of Nebraska-Lincoln, Gary Brooks, who was a Dickens specialist. And I would write my papers, and I would get B pluses, whatever, and he finally wrote and he said, "You know, Brenda, you write these really interesting things, but I have to read your paper three or four times to figure it all out." And from that feedback is when I really learned to really make sure your thoughts flow clearly from one point to another. And he made me a much, much better writer in terms of clarity. And so actually, professionally, where I use that the most now is when I'm writing letters of application, letters of recommendation for students, or applying for maybe a grant or something like that. Understanding what it takes so that the reader does not ever hesitate while they are reading what you have written, because if they hesitate, they're going to get off track, they're going to be distracted. And I think you're less likely to be able to help a student get into a job or a graduate program, less likely to get funding for something that you might want, and so I guess that's probably true within—because I'm not writing grant proposals much and things like that anymore, although I am writing institutional review board—what's the word I'm looking for—applications, and things like that. In some

ways, Dr. Kumar might be a better person to talk to, because she is writing more research papers in her field, and I'm far enough out of my field that, in terms of being in the laboratory and doing research, specifically in terms of publishing it, so much of my writing is focused on other things now. Does that make me a bad interviewee?

G: Not at all. Actually, I think it's interesting that you mentioned the IRB applications, right? Because that's definitely its own kind of genre, and so what are you trying to do when you write one of those applications? What's going on in your head when you are deciding what language to use?

R: Well, the first thing that goes on in my head is clarity and completeness, and really getting to the root of what it is we want to do and why we want to do it. And so, since I've been writing so long now and working in these areas so long now, I don't find that very hard to do anymore. And so I'm really grateful that that has happened over the years through practice, because it sure can take a long—and it still takes—a long time to write things. But yeah, and then with working with the students who are going to be working on the project, getting the pieces that will not only educate them and allow them to educate themselves, but approach the people they'll be working with in an appropriate way. So I think your language can help structure the work you're going to do. By getting all your pieces in there, I think your language can help structure the way that you're going to interact with people.

G: I'm glad you mentioned that idea of practice. You can practice in the genres. The more you do it, the better you get at it until eventually it's almost second nature, doing this so often you could almost do it in your sleep.

R: Yeah, absolutely. And one of the things I found, I've never had a course in creative writing, never enjoyed the thought of doing creative writing, although I certainly enjoy everyone else's creative writing. But my partner, Chris Peterson, was a former biology professor at Cotney, and he's an excellent writer, and he is writing a novel. And I read it, and I think, "How did you come up with all of this?" You know, the details in there, the sequencing is in there, it's got dialogue. And I'm just amazed, you know, that he has the ability to do that.

G: A lot of practice, huh?

R: Well, I don't know, I think he's got a lot of practice from writing letters over the years. He's been a strong, strong, strong letter writer, and his writing is always interesting. I don't know where else he might've got it, do you?

G: Well, I don't know, but you know, a question often comes up in writing studies about the transferability of things. Like, if you learn how to do this in one area, can it transfer over to another area? So it's interesting that he's coming from the, you know, an academic background where the genres are very formal and academic and rigorous, to a creative realm. But I would still venture to guess that some of these discrete skills he picked up working in academia could transfer to more creative outlets.

R: I'll have to ask him. You know, I also wonder how much of it has to be that he's been an avid lifelong reader, too. This is the case, but I've read so much in my life, and I feel like I've learned a lot about people in society from it. And I used to think everyone caught the same things when they read something, you know, and I was much older before I went, "Oh no, that particular thing drew my attention because of this moment in time in my life, someone else that may not have spoken to them at all."

G: Right, there are many different ways to read the same text. There is no one single universal way to read and understand and respond to a text and that's beautiful, I think. That's a wonderful thing.

R: And I was really pretty old before I understood that, before I recognized that. I was just surprised: "Oh, this is about the reader, too."

G: So, one more question. What advice would you have for a student looking to improve their writing in your discipline?

R: Do a lot more of it. Just make yourself write and write, and get that feedback. I mean, someone who can give you some pretty specific feedback on what you're doing. Yeah, I don't know what else to say about that—to read other people's writings, you know, examples of what it is, which is I think one of the reasons we're focusing on students reading the journal articles, both in seminar 1 and seminar 2. But it's not just to gain the knowledge that they're learning from that article and to practice presenting that information to other people, but it's to get a sense of, "Oh, in this case, I write for this audience. This is more informative to general people; in this case, I write for this audience." So I guess that's the other piece, is practicing different forms of writing. This is for a very technical audience; this is for a more general audience.

G: Yeah, so write a lot and read a lot, basically.

R: I think so. I do.

G: Yeah, and that's been my experience as well, is you know, you can spend all day trying to learn how to write, and it will only go so far, but really the best way is to just do it. And it's not perfect at first. It's going to take some messiness to get to it, but that's the way you get better and that's the way anyone who has ever become a "great writer" has become that way, is by doing it. No one is a natural-born great writer. That's something we really try to stress in the writing center as well, because a lot of students will come to the writing center and say, "I'm just not a good writer," and we want to say, "Don't say that. You're maybe an inexperienced writer, and we can do something about that. This is not a lost cause. You are not doomed to be a bad writer."

R: So you don't think Tolstoy wrote *War and Peace* in his first effort?

G: Uh, I doubt it. I don't know. I wasn't there.

R: Probably not.

G: But, I think even he needed some practice before he could do that.

R: I assume so.

G: All right, well, I found this extremely enlightening. Like I said, you know, we've had three wonderful episodes of the show prior to this, but we have never had actually got the chance to talk with somebody in the sciences. So hopefully, you all watching learned a little bit about how writing is done in chemistry, and maybe that again signals the fact that writing truly is done across the curriculum.

R: Absolutely.

G: Yeah, so we'll have this episode as well as a transcript for it posted shortly, and stay tuned for episode five. Don't forget also that the writing center is open Monday through Thursday, six to nine pm. We can help you with any writing project at any stage of the writing process, whether you're just getting started or you're putting on the finishing touches. No appointment necessary, just walk right in, lower level of the Ross Memorial Library, and you will be able to meet with one of our wonderful writing tutors. So, until next time, thank you once again Dr. Ross, for joining us today, and I'm Dr. Green with the writing center, and we will see you next time. Bye-bye!

R: All right, bye!