CATHERINE DRENNAN: For 5.111, we created this video series, and we called it, Behind the Scenes at MIT. And there are two kinds of videos. One where undergrads, graduate students, post-docs, or another faculty member are talking about how the basic chemical principles we're learning about in the class are used in their laboratory or by them and how those chemical principles will make the world a better place.

DARCY WANGER: My name is Darcy Wanger, and I work as a graduate student in the Bawendi lab at MIT. I work with quantum dots in my research. Quantum dots are really, really tiny particles of a semiconductor. People in our lab are working to make quantum dots bind to a tumor. So when a doctor goes in to remove a tumor, they can see, just shining a UV light on it, and see whether it's all gone when they've taken out the tumor.

CATHERINE DRENNAN: It was interesting because I talked to some of the students in the class about their sort of perceptions of things. And then, after they had watched the videos, sort of what they thought. And a lot of students actually said, I was wondering. You're learning this, and it's good, it builds character to learn something that could be challenging but wondered, am I ever going to use this for anything? And then they started watching these videos and seeing this, and they're like, oh, yes. This is used all the time. It could be used in my undergraduate research. People are doing this. This is a subject that people are actively learning new things.

And I feel like this is a question for a lot of intro classes, because you have these thick textbooks and you sort of feel like everything that could have been learned, it seems like it's all there. Like volume 2. There are three laws of thermodynamics. Are people trying to find a fourth law? What is someone who do chemistry research-- what are they actually doing? Discovering? No, we know what the electrons are already.

And so this gave people a sense of what people were using chemistry for now. What were those current questions. And when I was a high school teacher originally, that was really what I wanted. What are people doing now? What are the key questions? If I was studying chemistry, what would I be doing?

And I want to help create this material so other people can see that. Because for some people, if you tell them it's hard and it's a challenge to learn, they'll just learn it. And if they don't use it-- it could be like Latin, it builds character, it's fine, it's a dead language but OK, I'm going to get

in there. But then for other people, they really want to know that this is going to be useful. And if they're going to really invest in it, they want to know that it's important and they can do things.

And MIT students and I think so many people out there want to make the world a better place. There are a lot of really wonderful human beings. And they need the tools, and they want to do something that's important. So I want to create those tools for them to learn this so that they can apply it and do something and they can see the power of chemistry.