

BioCY News

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Kraft, Manz reflect on challenges of teaching during the pandemic

Two weeks — Like other faculty at Iowa State University, Jelena Kraft and Carly Manz from genetics, development and cell biology (GDCB) originally thought they would be converting two weeks' worth of lessons after spring break 2020 to online classes. Things were constantly changing with COVID-19, however, and two weeks quickly became the rest of the spring 2020 semester and then more.

Kraft, a GDCB assistant teaching professor, and Manz, a GDCB associate teaching professor, quickly converted their in-person classes and labs to online versions. In recognition of demonstrating exemplary innovation in their curriculum and pedagogy during the transition to online instruction, Kraft and Manz received Spring 2020 Teaching Innovation Awards. Kraft's primary teaching responsibilities are in Biology 313 and Biology 313 Lab (Principles of Genetics and Genetics Laboratory), while Manz's primary teaching responsibilities are in Biology 212 and Biology 212 Lab (Principles of Biology and Lab) and Biology 255 and 255 Lab (Fundamentals of Human Anatomy and Lab). Recently, Kraft and Manz shared their memories of those early days during the pandemic and the switch to online learning for what had been in-person classes.

Describe how you felt when you initially found out about COVID. Where did your thoughts first go in regards to teaching?

CM: It's hard to remember! Things changed so rapidly in those first few weeks. At first, we were told it would only be two weeks online, so we were trying to figure out how to shuffle course material so that they could still do

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— GDCB Associate Teaching Professor Carly Manz



dissections in BIOL 212L. One close shave we had was that we almost wasted hundreds of dissection specimens. We usually open them up and prepare them in the Friday TA [teaching assistant] meeting before spring break, and then students work on dissections for the rest of the semester following spring break. Once the specimens are opened up, they only stay good for a month or two. We heard about moving online for two weeks a few days before that meeting, and we thankfully decided to wait on opening the specimens until we came back for the end of the spring 2020 semester. Pretty quickly it changed to us realizing that the rest of the semester would be moved online, and so we were thinking about doing dissection videos. Then, we heard that we wouldn't be able to set foot on campus after spring break, so it became a scramble to get images in the lab before it was shut down and find materials online that we could share with the students. We were finally

Pandemic, continued on page 2

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Pandemic, *continued from page 1*

able to use the specimens in fall 2020 when we ran the lab in hybrid mode. I am incredibly grateful to have worked with the rest of the 212L teaching team, Chanda Skelton, Jake Eeling and Renu Srivastava, on adapting the course. It was definitely a team effort!

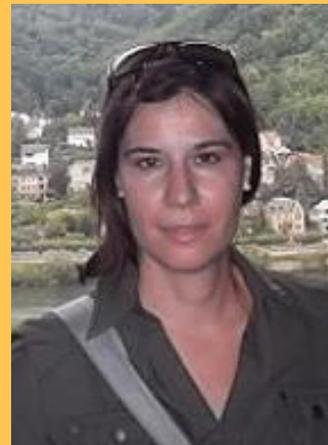
JK: Prior to spring break, we learned that students would not be returning to the lab after the break and would most likely remain off campus for the remainder of the semester. At this point, we had just introduced a research-based lab module. We knew that students would not be performing experiments. Yet, they still needed data to analyze and visuals of lab procedures used to obtain that data. This pre-run turned into a brainstorming group activity of TAs, lab assistants and faculty jointly working to decide what materials we needed to prepare and how to use the week-long break most efficiently to accomplish this. A team effort involved long, stressful hours and the camaraderie in compiling the research data and projects across 10 sections of this lab spanning several semesters, and delivering it to students just in time to analyze to complete their projects. It was a group effort that brought us all together even though we were physically separated in our homes.

Has COVID created any positive teaching outcomes? If yes, could you share what they were?

CM: While it was a lot of work to convert lab courses to all-online and then hybrid versions, one positive I didn't anticipate is that it really made us consider what our learning objectives were and reassess what it would take for students to achieve them in a built-from-the-ground-up way. In a lot of large courses with many moving parts, you inherit elements that have been around for years and changes are usually made incrementally. Once COVID hit, we had to rapidly change a lot of elements of the course, which was stressful, but also allowed us to be very creative. We were able to try out things we had been considering doing for a few years and also to try out things we came up with on the fly. Some of them went well, and we'll be keeping them in the future. Some of them did not go that well, but at least now we know, and we can more fully appreciate our fantastic lab classrooms and our even more fantastic lab staff.

"To allow for new teaching modalities, we recorded videos and included lab simulations for most experiments performed in the lab. Students used these resources before coming to the lab to do work. This allowed for better student preparation before the lab and maximized their time spent in the lab on experimental work."

— GDCB Assistant Teaching Professor Jelena Kraft



JK: Due to the pandemic, we transitioned the lab to an online teaching modality last spring and then to a hybrid modality in the fall. To allow for new teaching modalities, we recorded videos and included lab simulations for most experiments performed in the lab. Students used these resources before coming to the lab to do work. This allowed for better student preparation before the lab and maximized their time spent in the lab on experimental work. The other positive teaching outcome is that due to social distancing requirements, we could organize smaller lab sections, which allowed TAs to offer more personalized instruction and get to know their students better. Finally, we build weekly TA synchronous hours into the course structure to enable students to stay engaged with the material and course even while not in the lab.

Lessons Learned

The pandemic is not raging in the United States like it once was, and things appear to be getting back to a new "normal." The two weeks turned into more than a year of making changes and adjustments, but Manz and Kraft agree these challenges created some positive outcomes. Not only did the pandemic challenge these GDCB faculty to try new approaches to established practices, the pandemic required changes that helped streamline the time students spent in the lab. The reduced lab sizes created more personalized environments for both the students and TAs, and thereby, enhanced the Iowa State students' experiences.