

## Q&A Summary for *Running Labs Online: Sharing Approaches and Experiences* Skylight Online Teaching Series, February 9, 2021

1. What was the name of the program used to create 3D images for the EOAS course?
  - Prescient was used to create the 3D images and Sketchfab was used to display the images.
2. Q to Joss (Physics lab): I love the idea of folding time management into the lab along with the concept of limited resources in science. Are there marks assigned to student deliverables at the 3-hour time limit? If so, does this stress the students out and how do you manage this?
  - We shifted some of the skill development to the pre-lab, such as building an analysis spreadsheet for the type of data that will be collected. Students hand in their (digital) lab notebook and their data analysis spreadsheet at the end of the lab period, and are then done for the week. Students finish what they can in the lab.
  - We had to cut down the tasks (by a factor of 2 in some labs) and still see students taking up the full time and getting behind. We try to package the instructions as "we are saving you time and that extra effort should go into the pre-lab and being prepared". We also use a deliberate strategy to make the first couple of labs a struggle and then ease back on how much is required starting with the third lab; students respond well to this calibration.
  - Follow up comments
    - Students always want extra time in the lab itself, and yours seems like a nice approach.
    - EOAS typically has 2-3 hour lab periods with no cut-off. In a Fall 2020 mid-course survey, students noted they had less support from lab partners and TAs, and they were struggling since they were working alone. This happened despite the tasks being reduced already by the instructors in an attempt to keep things manageable. This is something for those of us planning the labs to keep in mind.
3. Q to Blaire (Biology lab): Using the CREATE model [33:22 in the event video] is a great approach. Do you have any pre/post measurement?
  - Yes: a pre/post survey from [Sally G. Hoskins](#) (developer of the CREATE method) used in Term 1 (Sept-Dec 2020) that had students self-assess their Science attitudes and abilities. There were very exciting outcomes from Term 1, with significant gains in all categories. We are collecting this data again for the Term 2 (Jan-Apr 2021) version of the course.
  - The development/instructional team thought about student gains when going into the course, but discovered gains for instructors as well! We will be doing an instructor pre/post to follow up on this.
4. Q to all: When we go back to 'normal', what aspects of the online portion of your lab - if any - would you consider keeping, and why?
  - Jay (Chemistry lab): Pieces of our in-person content could be transferred online for our chemistry labs, but we have to be careful of overloading students, so we would have to establish if it is worth it.
  - Joss (Physics lab): With the department, some of us teaching labs have wanted to use/incorporate online, simulation-based labs for some time. In the past, we gave lab students a

data set prior to lab so they could build data analysis spreadsheets during pre-lab; now, the students can directly work with the simulation as part of the pre-lab.

- Nichole (Geology lab): Students used to be disappointed they could only see/access rocks during the in-person lab session, so this digital collection is great because they can use it anytime outside of the lab, and even during the lab if the physical sample is being used by other students.
- Blaire (Biology lab): For their final projects, students use media (podcasts, placements, etc.) to synthesize what they have learned. The cartooning [33:10 in the event video] seems to be positive as something to keep. Discussions recently have been so positive about this conversion of the labs that the department may try to keep it longer.

5. Q to all: Any comments on TA learning and/or need for training?

- Nichole (Geology lab): There is a high level of TA learning already in the department, especially through a dedicated grad course in teaching and learning. The grad students TAing this course knew a lot about rocks, which was a big help.
- Jay (Chemistry lab): TA Training is now through Zoom, though the grad students are synthetic chemists and quite comfortable with the lab equipment, etc. I have a megaphone to encourage TAs to distance themselves from students when they are helping (students have been great about distancing but TAs tend to start to get closer when helping); your voice gets shredded with mask and no amplification. This sort of general monitoring is needed for the COVID protocols we have in place.
- Blaire (Biology lab): With the new lab model, TAs have had to adapt, and they have been valuable resources in the development. Compared to more traditional labs, the TAs are more of a team with their instructors (many of whom are very new to this lab and haven't taught first years recently/ever) and have a role in curriculum development. The TAs and instructors are learning together about teaching online.
- Joss (Physics lab): Our TA training has been largely unchanged beyond some changes to how we're asking them to facilitate small groups.

6. Q to all: I'm teaching less than 50 students, with one TA. Part of the redesign involved the TA, so they were co-creators in course design. It was easier in this case since it was just two of us (one instructor and one TA), but it was more difficult to circulate during online group activities. By the time the TA or I have seen a group or two, a lot of time has passed. Any suggestions here?

- Ashley (organizer/host): There is the TA air-traffic controller idea like Joss mentioned [45:38 in the event video].
- Blaire (Biology lab): In this example, students tend to be in persistent groups so they get to know each other better. The instructor added more reflective assignments that include reflection on group dynamics to potentially offer feedback.
- Joss (Physics lab): Cloud-shared documents, like a Google Slide deck where each group gets one slide, are a way to track group progress without joining breakout rooms (though Google specifically is a challenge for students in some countries). If using a collaborative document, ask everyone to use a different colour so you can see who is making what contribution. [See <https://opened.ca/> for open applications for teaching in BC.]