

Summary from the May 22nd Analytical professors and lecturers discussion.

Over 55 instructors from across Canada and a few from the US participated in the discussion. Here are the main points raised concerning the shift to online teaching and issues around laboratory teaching in the context of restricted campus access during the current pandemic.

State of the situation:

- Most Universities around Canada have already announced the plan to switch, to varying degrees, teaching online for the Fall and in some cases, for Fall and Winter terms.
- Laboratories are considered differently across the country, more on that below, as some will have partial access to teaching labs, others none at all
- Both asynchronous and synchronous classes/teaching are considered and some universities have made recommendation to asynchronous, likely to accommodate international students on different time zones
- A number of teaching aid tools compiled online (<http://www.anchem.ca/online-teaching-resource.html>) are available, most are free for students to use including the commercial ones
- There is a lack of access, or at least an apparent lack, to online videos to describe analytical techniques. Everyone is encouraged to send links to online resources to jf.masson@umontreal.ca which will be posted on the anchem.ca website
 - A list of videos can be found from QCA , Harris and Lucy:
https://docs.google.com/spreadsheets/d/1-KXytvg_tXLLA4EUXsiAeiMiULc5Yr2IJmf8kWyCEEY/edit#gid=0
 - *Journal of Visualized Experiments (JoVE)* has a number of videos of analytical experiments. Examples are posted in the CSC Virtual Lab google doc (https://docs.google.com/document/d/1oNFtiSN23jD_pFxCcUo_y23DPZPWjr-O4ftehDgod8Q/edit).
 - When making videos, proper PPE and safety practice must be used.
- Issues with cheating and the use of Chegg.com has been raised
 - Recommended to use exams monitored by video (some websites are proposed to do so, either with Zoom or proctorexam.com)
- Classes that were previously flipped seem to run better online. A learning curve is ongoing for more traditional teaching

Laboratories:

- Among the universities that intend running laboratories in person, it is expected that the capacity will be about 1/3 to 1/2 of the usual one.
 - Mitigation methods will be necessary, such as: shorter labs, extended schedule (nights and weekends), staggered lab start/end times to minimize crowding in halls and outside labs.
 - The recommended PPE needs to be discussed, but one expects that TAs, techs and professors might need to wear a mask and visor, unclear for students (can we impose it?). Some schools are installing plexiglass partitions between lab stations.
 - An evaluation of the labs that must absolutely be run in person has to be done. Some expect that they will run about half their normal lab rotation, but that changes tremendously depending on whether it is gen chem, quant, or instrumental analysis. We expect that the upper division labs should be in person, likely not for gen chem.
- Among the laboratories that will be done remotely, discussions about take-home labs with kits and videoconference type of labs have been raised. The consensus is that we lack video support for labs and that we should team up to produce a set of labs.
- Concept of a week-long booth camp has been discussed

Curriculum:

- Discussion evolved what are the key skills we must teach in analytical chemistry
 - Reproducibility
 - Hands-on skills on complex instruments
 - How to teach those remotely?
- Best practice on using technology for online teaching performance; Zoom, breakout rooms, etc.

Other points:

- Mental health, of the students, and everyone else is a concern.
 - Will students be reluctant or eager to go to campus for a lab?
 - How do we deal with students with conditions preventing them from going to campus?
- Having students sign a contract improves their conduct within a group help. Group contracts (provided by Chris Harrison)
 - https://docs.google.com/document/d/1I4gfbXoTUzW7NBwo8zPrX3TpPPzHaKXdhP1xcR_jn8c/edit
- Contribute your suggestions for virtual labs to https://docs.google.com/document/d/1oNFtiSN23jD_pFxCcUo_y23DPZPWjr-O4ftehDgod8Q/edit; and send suggestions for the CSC ACD's online compilation

of teaching resources (<http://www.anchem.ca/online-teaching-resource.html>) to jf.masson@umontreal.ca

- We need to reconvene a few times.
 - June 12th, 1 PM Eastern time: In person lab (personal protection and adapting lab space)
 - Join Zoom Meeting
<https://umontreal.zoom.us/j/97309398892?pwd=YmlpU2FBSmRubExVSFfc2VTIBN3JTQT09>

Meeting ID: 973 0939 8892
Password: 427987
 - June 12th, 2 PM Eastern time: Remote/virtual lab
 - Join Zoom Meeting
<https://umontreal.zoom.us/j/97309398892?pwd=YmlpU2FBSmRubExVSFfc2VTIBN3JTQT09>

Meeting ID: 973 0939 8892
Password: 427987
 - June 26th, 1 PM Eastern time: Online teaching, methods, assessment plagiarism
 - Join Zoom Meeting
<https://umontreal.zoom.us/j/98545492366?pwd=UVBuZy9McTNERDFIRzFtMGpEc0pZZz09>

Meeting ID: 985 4549 2366
Password: 386857