Best practices in laboratory training in covid-19 era

This document suggests best practices for training new lab workers in the COVID-19 era. The OSU Physics departmental guidelines (7/20) require that if trained workers they have to work in pairs (e.g. for safety or some other reason) that they wear face coverings and maintain 2 m distance. This requirement now includes training: *"Training of new workers is permitted only if the trainee and trainer can maintain 6 feet of distance. Wearing face coverings is mandatory when working in pairs."*

With regard to in-person training, we may never go back to "business as usual," so we have to think, "How does training work now?"

The basic principles are:
(a) keep the building occupancy low (space and time)
(b) keep the lab occupancy low (space and time)
(c) if 2 people are in the lab simultaneously, both must be masked and maintain 2 m of distance. Limit talking, especially when in closest proximity. Minimize time together.
(d) appropriate ventilation (biggest unknown in Wenger Hall)

Online lab equipment documentation
Maintain a central repository (Canvas page, blog, wiki, webpage, Box folder) of well-organized original equipment user manuals and installation manuals and any other documentation supplied by the manufacturer or builder.

Create shorter, "quick start" versions of the manuals that emphasize the commonly-used techniques. Hyperlinks are useful to skip around in documents. Audio annotations can help, too. Powerpoint has an audio recording mode that allows audio to be stored along with visuals.

Create short videos of many procedures that complement the manuals that show equipment in the local setting. Videos that identify equipment location and important features can be separate from videos that illustrate procedures. Use phone video cameras, GoPro cameras, webcams + Kaltura/Zoom …

Create tutorial examples for procedures to help beginners start out simply and progress to more complex modes. Create pathways through training material.

Cycles of training:

A. Emphasize safety protocols inherent to the equipment and ensure all EHS training is complete.
   EHS videos and reading: https://ehs.oregonstate.edu/
B. Emphasize safety protocols related to COVID-19 (gloves, masks, handwashing, sanitizing surfaces, equipment and PPE, ventilation, room scheduling, reporting

etc.).
EHS videos and reading: https://ehs.oregonstate.edu/

C. Read manuals

D. Study videos

E. Trainee watches trainer from remote location.

F. Trainee and trainer in lab together, masked, 2 m distant. Limit talking especially when in closer proximity. Limit duration of 2-person lab occupation. Wear gloves. Sanitize commonly touched surfaces and knobs, keyboards etc.

G. Trainer watches trainee from remote location

Repeat steps as necessary

H. Trainee and trainer agree on competency

Ventilation may be very important and we don't know as much about this as we'd like. Where does make-up air come from? And is this area occupied by many people? Are aerosols transmitted through the ventilation and fume hood ducts?

Comments, resources

• Use OSU resources as much as possible for security, privacy and avoiding advertisements.

• For compiling quick-start training info on a web page, good ideas for IT platforms are
- Canvas pages
- http://blogs.oregonstate.edu/

• For posting training videos, we can avoid using YouTube (and hence avoid advertisements) by using OSU media space. OSU media links seamlessly to Canvas (and maybe other places too).
- https://media.oregonstate.edu/.

• When a trainer or trainee is watching from a remote location, it may be useful to set up a tripod holding a cell phone. Then, the people can get the best possible view. A Go-Pro camera worn by the person in the room may also be useful.

• A positive example: An undergrad researcher is "trained" but not expert on one system. I helped him troubleshoot via Zoom while I was at home at my computer and he was in the lab with a cell phone camera. It was good for the student because he made every adjustment. It was good for me because I had to articulate every thought and I could not take over as I might have done in person! It took longer, but we solved the problem, perhaps better.