Preparing for Fall  
Multiple scenarios | Multiple solutions

**FULLY ONLINE**
- Asynchronous sessions
- Establish a presence and build community with audio and video
- Set clear expectations for communication, engagement, & participation
- Provide accessible content in multiple formats
- Consider simulations, presentations, and process-learing techniques
- Use BbLearn for online appropriate assignments, assessments, & feedback
- Create videos and learning modules, but keep them short, clear, & concise

**HYBRID**
- Blend of asynchronous and in-class synchronous sessions
- Clearly identify when and why synchronous sessions will be held
- Link asynchronous and synchronous content and learning experiences
- Consider “meetings” mindset for synchronous sessions
- Flip the class to make the most of synchronous sessions
- Set clear expectations for synchronous and asynchronous engagement

**HYFLEX**
- Primarily synchronous sessions
- Two “live” audiences –one in class, another online
- Clearly identify how and when each student/population will participate
- Set clear expectations for communication, engagement, and participation
- Record sessions for students who may not be able to attend live
- Think about parity --equally enriching learning experiences for all students
- Use BbLearn and other tools to maintain a sense of community.

**THE PIVOT**
- Things can change in an instant, as they did in Spring, 2020
- Plan your class FLEXIBLY, knowing it may go fully online
- Design assignments, assessments, and communication strategies that can adapt to anything
- Think about what a seamless transition would look like and how that would work for you and your students

Talk to us about technology, pedagogy, and inclusive course- and instructional design!
Go To www.menti.com and use the code 76 10 64

What is your biggest concern regarding labs and collaboration in the era of COVID-19?
Framing and open conversation

Goals:
• To generate and share ideas and solutions for lab-, field-, and collaborative-learning experiences.

Opener:
• What do you typically do?
• How do you do it?
• How will that translate into the instructional modality you have selected/been assigned?

• Collaboration and community in a hyflex or hybrid environment.
Sciencey Stuff

• When you think about your classes and labs, what do you really do?
• Virtual or simulation? *They’re similar, yet different.*
• Is student work more observational or interactive?
• Computational, analytical, or interpretive?
• Is it typically about “the process” or “the product”?
• Is it typically in a classroom, an experimental laboratory, or the field?
• Let’s use these (and other, as defined by you) factors to dig in and consider solutions.
• PBL or CBL?
• “Think differently about labs”
• Labs v. recitation; your presence or a TA’s; linked to the course or in its own orbit; expectations?
Think about project based work and “ways of doing”

• Can you...
  • Focus on interpreting data as opposed to gathering it?
  • Share data they can manipulate?
  • Have students predict outcomes and identify the next steps in a process?
  • Look at work like draft submissions, to give and get feedback, develop a research design, foster hypothesis building, select methods, and predict results?
  • What about the computational stuff? Knowing you got something wrong—and even where you went wrong—doesn’t necessarily help one learn how to get it right...
  • What about “product” based evidence of learning?
Some handy tools from **Harvard’s Boc Center**

- If the focus is on **learning techniques and their application to specific experimental situations**, consider asking your students to engage in online simulations that may cover at least portions of, if not the entirety of a protocol.

- Harvard’s **LabXchange** has just released a suite of lab simulations with assessments and **guidance** that focus on basic molecular biology techniques. The LabXchange library also includes a curated set of simulations drawn from partner sources like **PHET** and the **Concord Consortium**. How to combine these simulations with supporting content and your own assessments is described [here](#). You will be able to **assign** these simulations with your associated assessments and get your students’ performance data. For additional help email: [labxchange@mcb.harvard.edu](mailto:labxchange@mcb.harvard.edu).

- **MERLOT** and **Merlot Skills Commons** offer collections of virtual labs in a variety of science disciplines, but note that you will not be able to capture student performance data. Many textbooks also provide interactive lab-based resources if you have adopted the book for your course. Merlot also provides links.

- You might consider having your students watch videos of experiments; you can ask your students to first make predictions and then discuss the results. **The Journal of Visualized Experiments** offers videos of experiments, including many designed for **students**.
Different Populations, Same Goals

• Biggest Challenges to any learning situation:
  • Fear of being wrong/not knowing
  • Accepting and using feedback
  • Class size/inclusion

• Favorite Collaborative Learning Techniques
  • Think-Pair Share
  • Peer Feedback (provided student are “normed” on a rubric)
  • Opinion Polls to uncover assumptions/pre-existing knowledge
  • Word Cloud to uncover concerns/interests
  • Pro/Con Grid
  • Group Note Taking
  • members focus on an individual element of the phenomenon in question, then combine their elements to create a whole picture of the phenomenon
Tips and examples for HyFlex teaching

• **Flip it**
  - Even in synchronous classes, a lot of the work—and learning—can occur in-between class sessions, and time in-class can be used for discussions about their learning.

• **Use a modified tutorial model**
  - The “Oxford Model” still works great, and adapts really well to labs and learning of all types.

• Record every session
  - Don’t underestimate the value of a good lecture
  - Remember that you are an expert and your knowledge helps students understand all the content they are working with.

• Post supplemental materials
  - PowerPoints can be voiced-over/narrated. So can google slides. Both accommodate graphics and video, too. While “reading” the slide can be of some value, think of the points you would make about the slide content.
    - Keep them short—research indicates that we lose them faster than we think. Think 3-7 minute modules.
  - Use content from other sources—Data from repositories, videos from various on-line sources, links to major information sources (scholarly and otherwise).
  - Use technology like screencastomatic to record yourself and for students to record themselves. Consider also FlipGrid.

• Keep students engaged and hold them accountable
  - You can still do groupwork, projects, presentations, and in-class discussions—maybe just a little bit differently.
  - Have students write something, however brief on what’s happening/has been learned in class or from the readings, and do something with that. Use Cognitive Wrappers Template.

• Replicate or simulate key learning experiences for dual audiences
  - Work with community partners, do podcast-like interviews with authors, host guest speakers and panel discussions—all online and in real-time.