Transitioning to online and remote teaching

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The Western North American Region of The International Biometric Society

My journey with online/remote learning

2012-2013: Got involved in Massive Open Online Courses (MOOCs)

2013-2014: “Flipped” my writing and intro stats courses at Stanford

2014-2015: Flipped my advanced stats courses at Stanford

2020: Currently adapting in-class components for remote learning

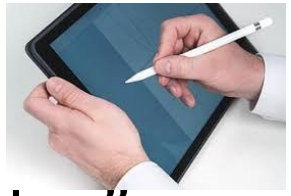
Flipped classroom works well for subjects where you learn by doing, e.g., writing and applied statistics.

What do we do in class?
-examples from the news
-challenge problems
-data analysis
-*code diagnosis*
-homework assignments
-cool projects, example: Community service data analysis projects.

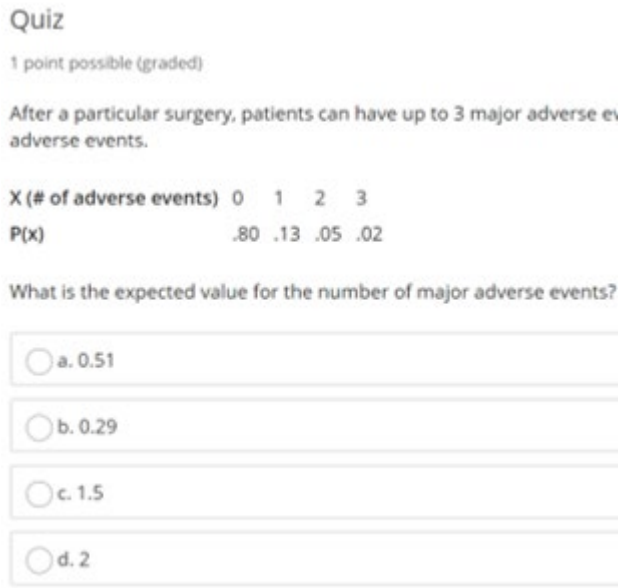
Tips for pre-recorded lectures

- Break lectures into “chunks”

- It is *not* necessary to follow ha ules for the lengths of these chunks



- Write on the screen
- Include “pause the video” exercises
- Follow videos with easy online quizzes
- Consider including “how to”/“demo” videos…



Quiz

1 point possible (graded)

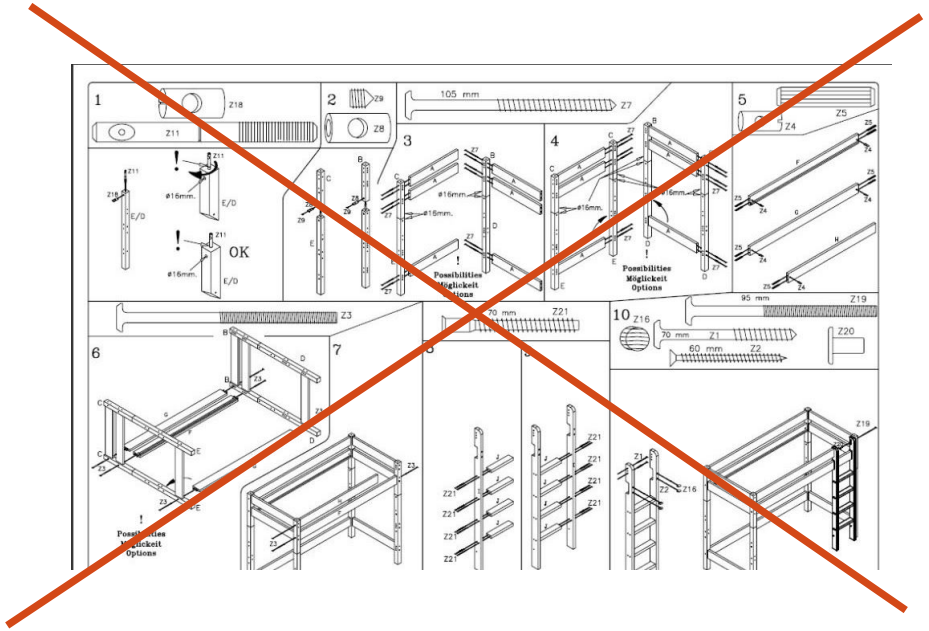
After a particular surgery, patients can have up to 3 major adverse ev
adverse events.

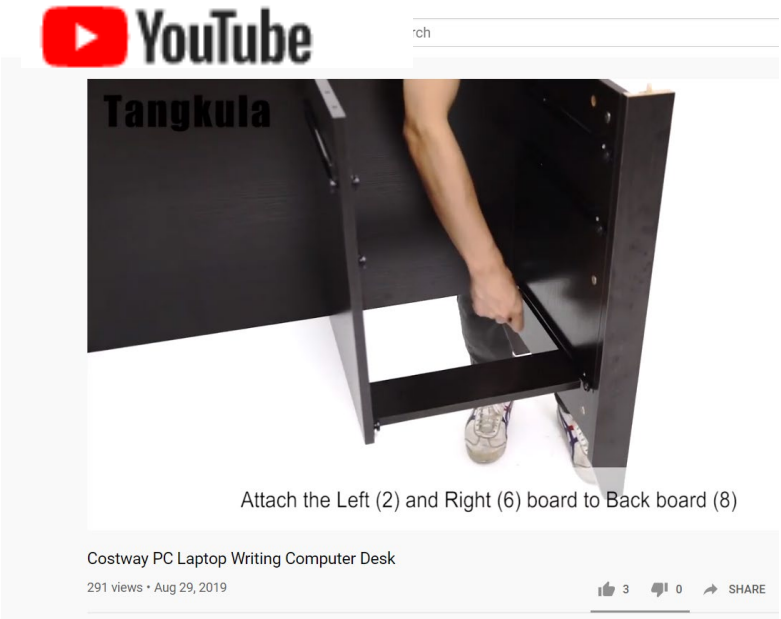
X (# of adverse events)	0	1	2	3
P(x)	.80	.13	.05	.02

What is the expected value for the number of major adverse events?

- a. 0.51
- b. 0.29
- c. 1.5
- d. 2

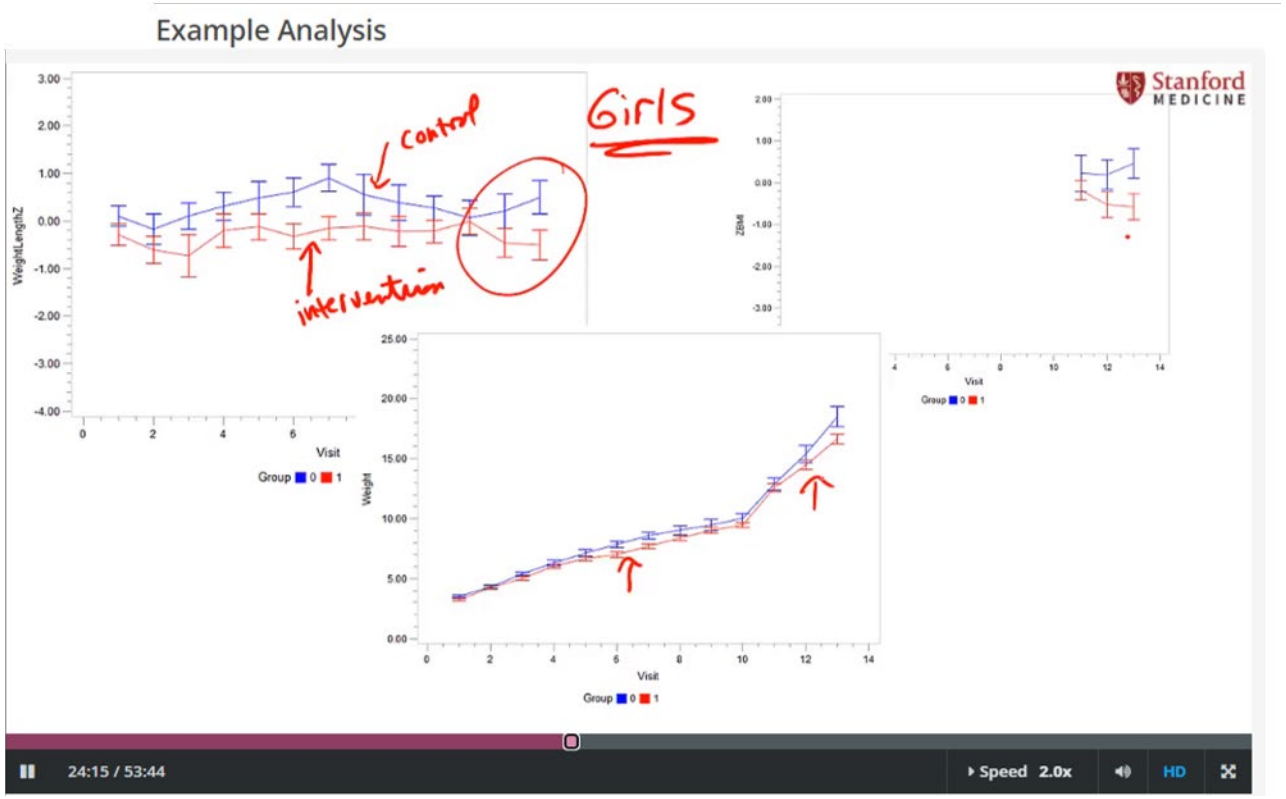
“How to” lectures





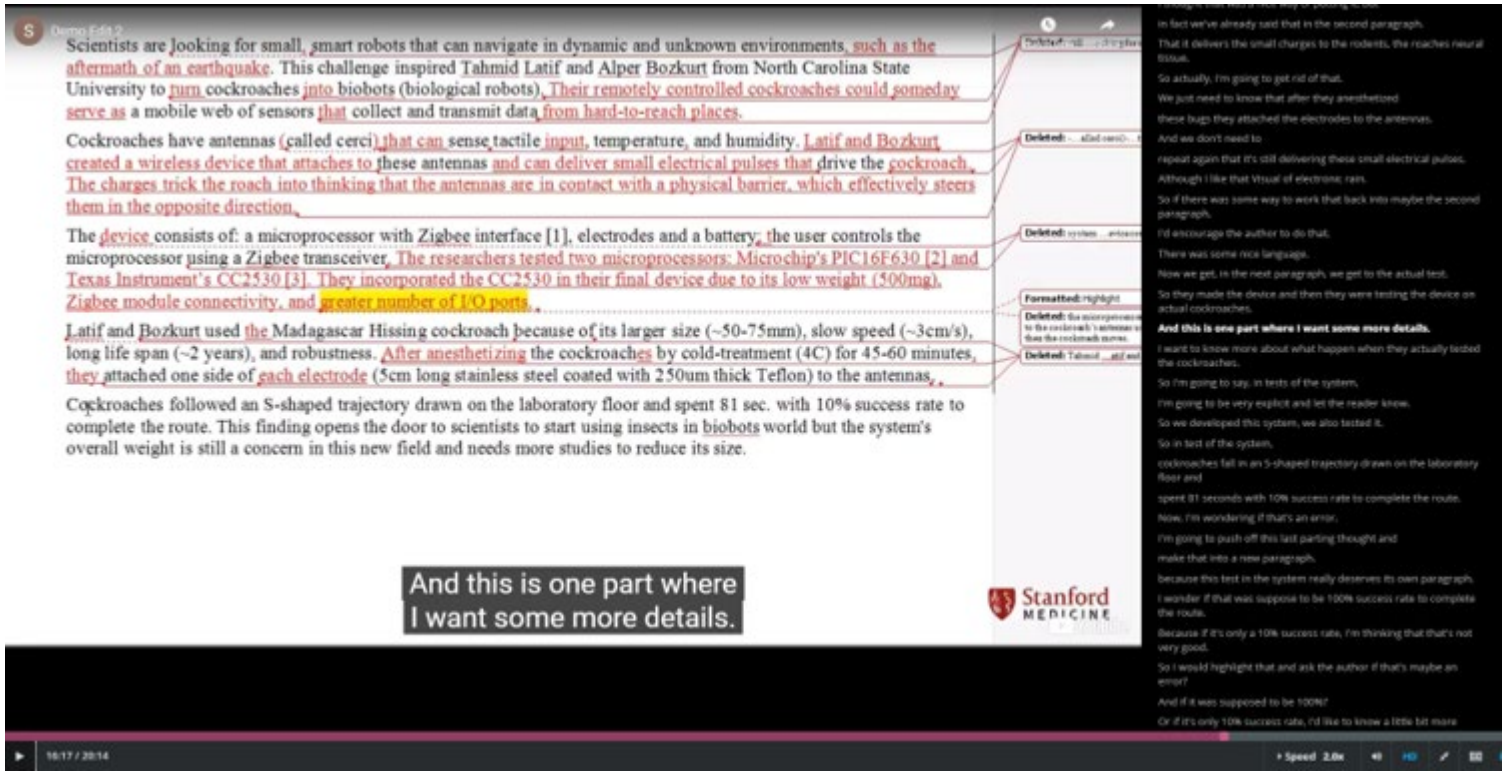
Statistics Demo

Walk through a data analysis from start to finish (50 minutes)



Editing Demo

Edit a 500-word essay in real-time (30 minutes).



Tools for video production

Camtasia

iSpring Suite (entire course development)

Powtoon (animated videos)

Biteable

Rawshorts

Adobe Spark

Tips for synchronous remote lectures

- Do *not* simply deliver your in-class lecture online.
- Break lectures into smaller segments
- Intersperse didactic materials with interactive exercises
- Have a TA or co-instructor present to monitor the chat fo
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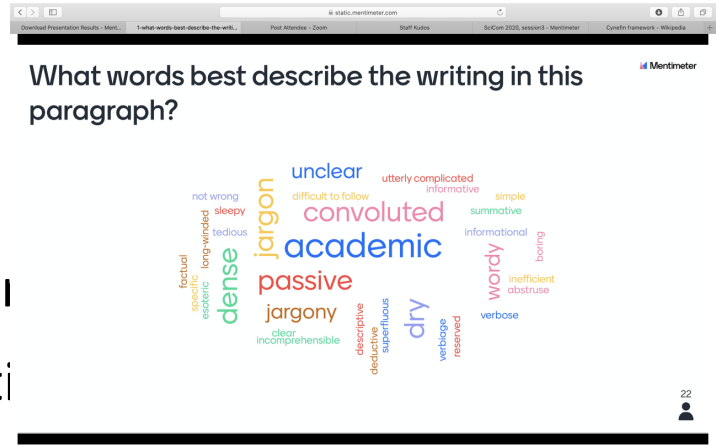
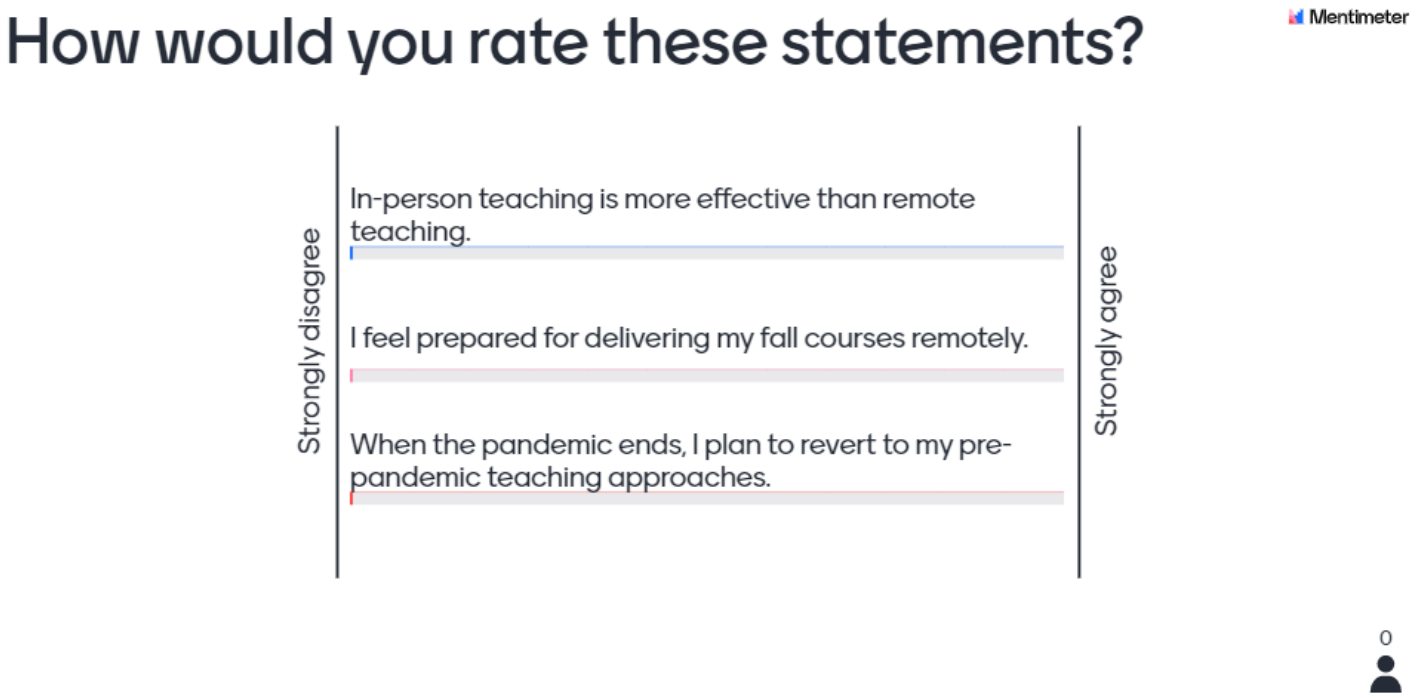
- Give breaks for classes >1 hour
- If bandwidth permits, ask studer videos on
- “Cold call” on students
- Be flexible!



Interactive Exercise

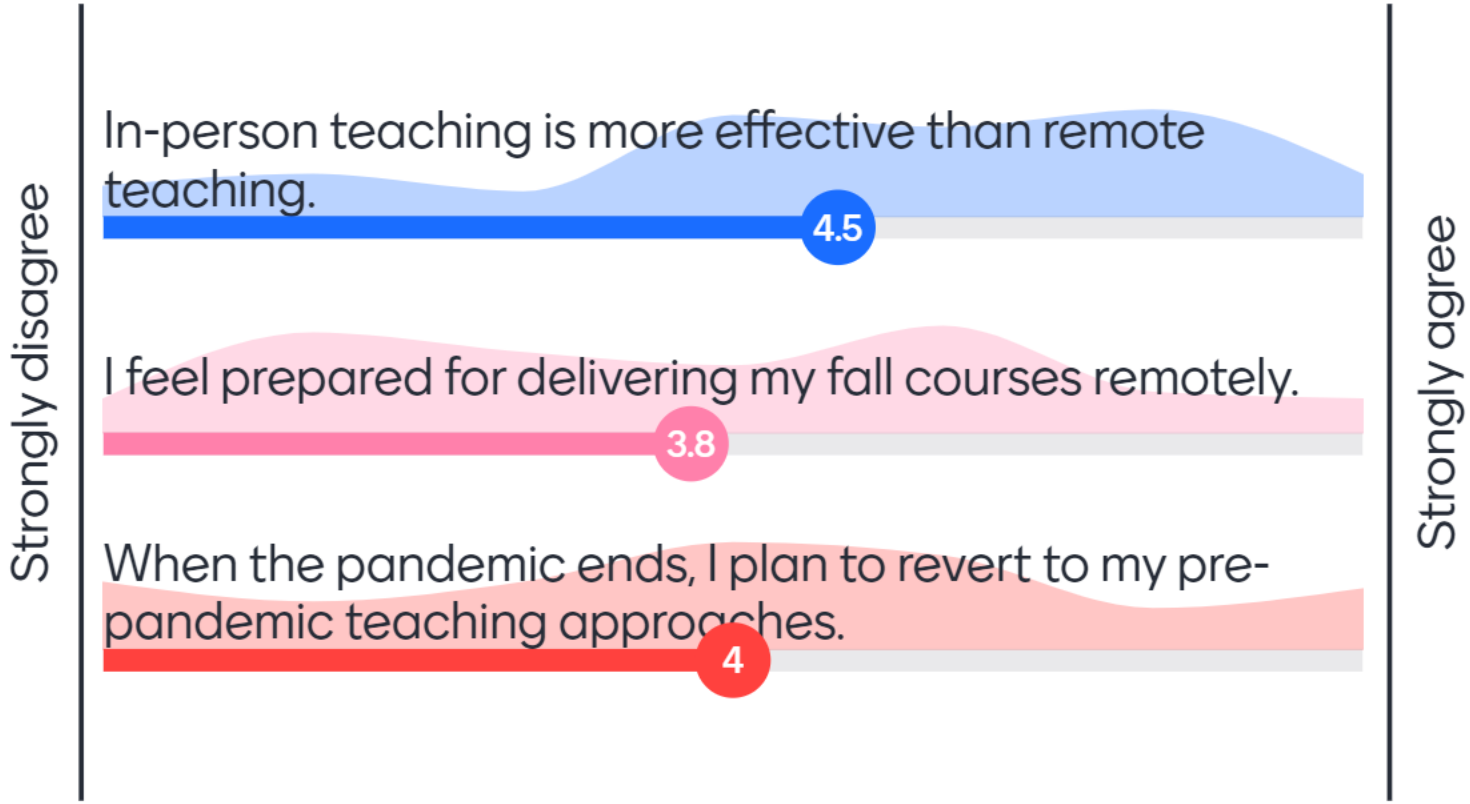
Go to Menti.com and enter the code 63 46 12



Go to **www.menti.com** and use the code **63 46 12**

How would you rate these statements?

Mentimeter

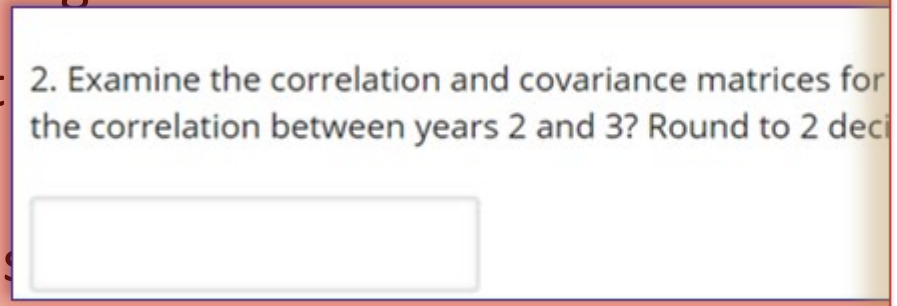


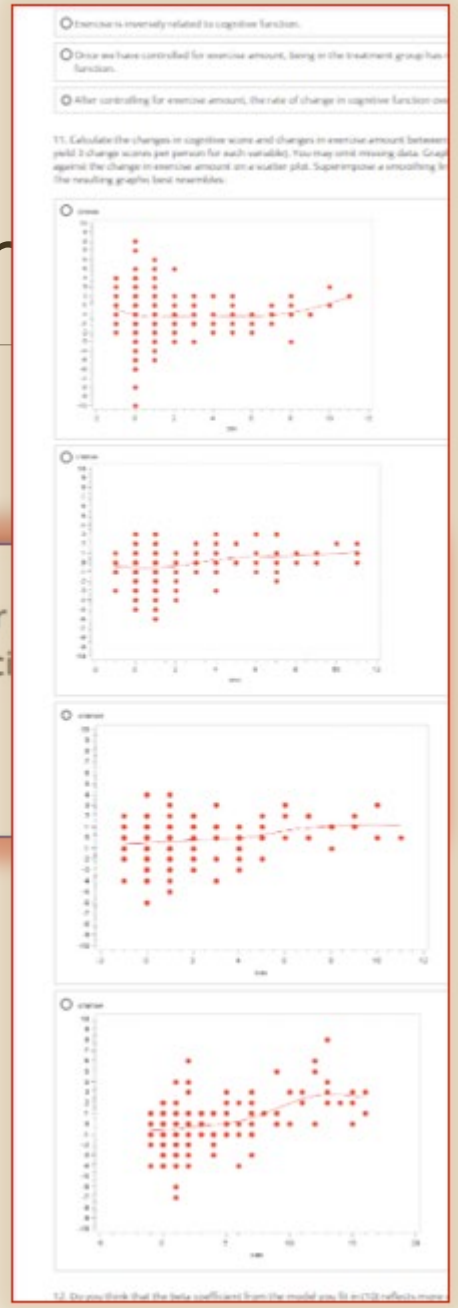
Online tools for interactive exercises

- Mentimeter, https://www.mentimeter.com/
- Google docs, https://docs.google.com/
- Poll Everywhere, https://www.polleverywhere.com/
- Padlet, https://padlet.com/
- Whiteboard Fox, https://whiteboardfox.com/
- Annotate (in Zoom)

Tips for online assignments and exam

- Give clear instructions for auto-graded materials
- Build in sufficient tolerance for rounding errors
- Use multiple choice for checking that data (with “decoy” graphs)
- Include multiple versions of question software/platform allows
- Make timed exams open-book—ask questions that require students to think or do
- Include some assessments that are graded off-line





Parting thought

Education was moving in this direction anyway. The pandemic is just going to kick us there faster!