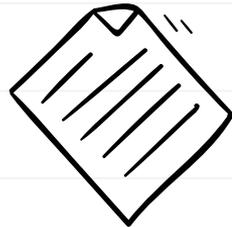
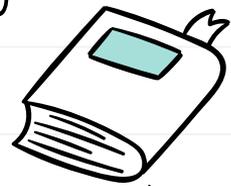
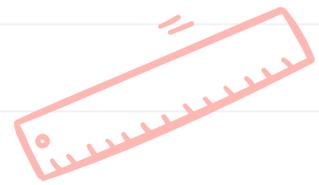
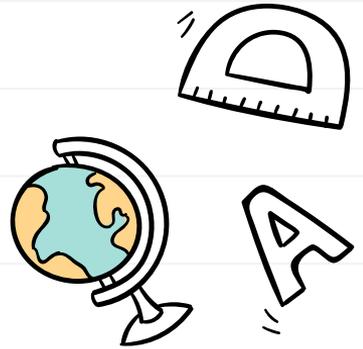


TEACHING RESEARCH METHODS AND STATISTICS: HELPFUL ONLINE RESOURCES



INTRODUCTION

Due to the COVID-19 pandemic, many institutions of higher education will be shifting to online or hybrid instruction for the 2020-2021 school year. This shift can be daunting from a pedagogical standpoint.

The Federation of Associations in Behavioral & Brain Sciences has developed this methods/statistics resource in an effort to support our affiliate members.

These slides describe a few online resources that assist educators in creating a more interactive and accessible educational experience for students.

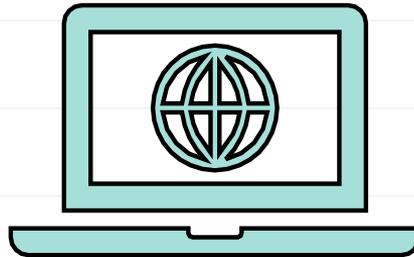


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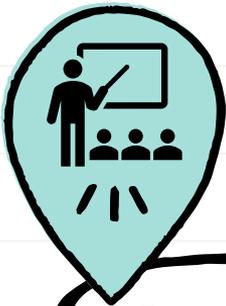
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INSTRUCTION



SYNCHRONOUS LEARNING

Real-time or live instruction

Benefits:

- More student-instructor interaction
- Allows for peer interaction and activities
- Feedback/student questions can be dealt with immediately

ASYNCHRONOUS LEARNING

Pre-recorded or pre-developed instruction materials

Benefits:

- Instructors don't need to deal with tech issues (e.g. connection issues).
- More flexible for students (i.e., students learn at their own time/pace)

WHICH SHOULD YOU CHOOSE?

WHY NOT BOTH?

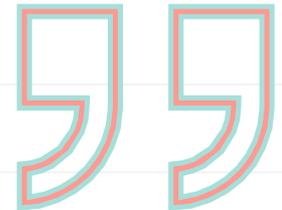
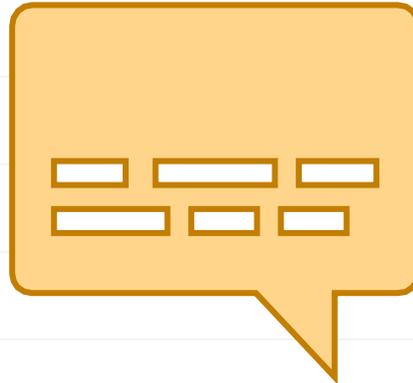
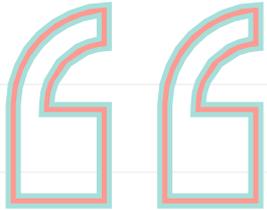
WHAT MAKES THE MOST SENSE FOR YOUR COURSE WILL DEPEND UPON THE CLASS SIZE, STRUCTURE, AND STUDENT POPULATION

THERE IS NO "RIGHT" CHOICE

CLOSED CAPTIONS

To make virtual classroom instruction more accessible for all students consider adding “closed captions” to pre-recorded or live videos using the following tools:

- [Google slides with captions \(also has brail support available\)](#)
- [YouTube caption resources \(editable and allows for multiple translations\)](#)
- [Skype captions and subtitles \(multiple languages\)](#)
- [VoiceThread captions \(editable\)](#)



LESSON PLANS



1. GOALS (LESSON OBJECTIVES)

What do I want to accomplish this lesson?



2. MATERIALS (HANDOUTS, DOWNLOAD SOFTWARE ETC.)

What is needed in advance of the lesson?



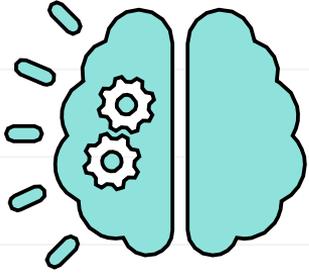
3. OUTLINE (ALL ACTIVITIES AND TIME ALLOTTED)

What will I be doing/how much time will it take?



4. REFLECTION (HOW DID STUDENTS RESPOND; FUTURE CHANGES ETC.)

How engaged were students?
What changes (if any) are needed?



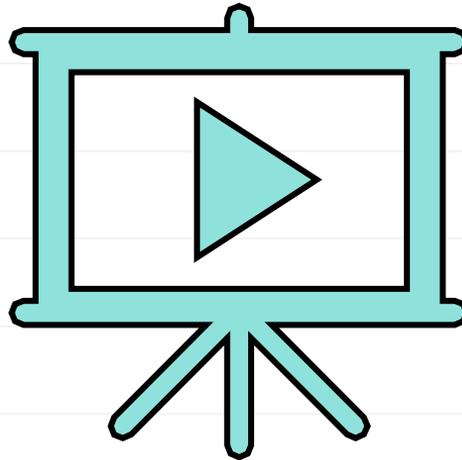
**AFTER 15-20 MINUTES OF
LECTURING, STUDENTS LOSE
FOCUS; PLANNING VIDEOS
AND/OR ACTIVITIES CAN KEEP
STUDENTS ENGAGED!**



VIDEOS

1. TeachPsychScience.Org has a repository of useful videos for substantive and methodological/statistical psychology courses:

- <https://teachpsychscience.org/index.php/category/research-methods/>
- <https://teachpsychscience.org/index.php/category/statistics/>



VIDEOS (CONT.)

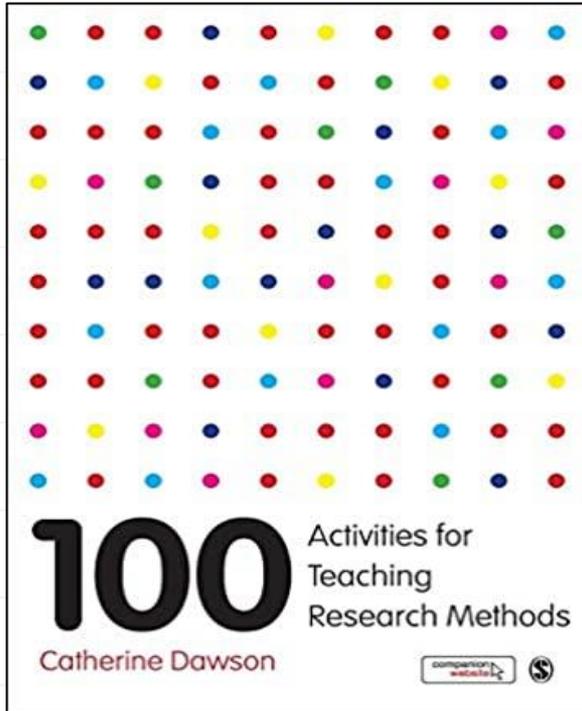
2. Ted and TedEd talks focused on research methods topics or concepts:

- The mastery of methods (Birte Karoline Manke)
<https://www.youtube.com/watch?v=u4iOeHXObok>
- Not all scientific studies are created equal (David H. Schwartz)
<https://ed.ted.com/lessons/not-all-scientific-studies-are-created-equal-david-h-schwartz>
- Is there a reproducibility crisis in science (Matt Anticole)
<https://www.youtube.com/watch?v=FpCrY7x5nEE>
- How to spot a misleading graph (Lea Gaslowitz)
<https://www.youtube.com/watch?v=E91bGT9BjYk&vl=en>
- Why you should love statistics (Alan Smith)
https://www.ted.com/talks/alan_smith_why_you_should_love_statistics?language=en
- How statistics can be misleading (Mark Liddell)
https://www.ted.com/talks/mark_liddell_how_statistics_can_be_misleading/transcript?language=en
- How juries are fooled by statistics (Peter Donnelly)
https://www.ted.com/talks/peter_donnelly_how_juries_are_foiled_by_statistics?language=en
- How do focus groups work (Hector Lanz)
<https://www.youtube.com/watch?v=3TwgVQIZPsw>

ACTIVITIES

1. Get inspired from previous APA TOPSS Charles T. Blair-Broeker Excellence in Teaching Awards; modifying one of their 2-day lesson plans to work with undergraduate students like this one on thematic content analysis:
 - <https://www.apa.org/ed/precollege/topss/lessons/swanson-lesson.pdf>
2. Browse research methods and statistics activities compiled by the Society for the Teaching of Psychology (STP):
 - <http://teachpsych.org/page-1603066#stats>
3. For higher-level undergraduate or graduate level courses, try some statistics exercises developed by the Social Science Research & Instructional Center (uses SPSS and PSPP):
 - <http://www.ssrc.org/trd/exercises>

ACTIVITIES (CONT.)



4. Peruse Catherine Dawson's 100 Activities for Teaching Research Methods which includes 100 learning activities and step-by-step instructions divided into the following sections:

- Finding and using sources of information
- Planning a research project
- Conducting research
- Using and analyzing data
- Disseminating results
- Acting ethically
- Developing deeper research skills



Sample activities (in part) found here:

<https://us.sagepub.com/en-us/nam/100-activities-for-teaching-research-methods/book248142#preview>

FINDING DATASETS



SEARCH GOOGLE

<https://datasetsearch.research.google.com/>



PEW DATA

<https://www.pewresearch.org/download-datasets/>



HEALTH DATA

<https://guides.lib.berkeley.edu/publichealth/healthstatistics/rowdata>



CRIME DATA

<https://www.ucrdat.atool.gov/>



EDUCATION DATA

<https://www.ed.gov/open/plan/data-gov>

FREE SOFTWARE

1. CHECK WITH IT

It is always good to first check with IT or the appropriate department to find out what is available for free or discounted

2. USE A TRIAL VERSION

If you only need software for a single class, consider having students use a free trial subscription:

- [IBM SPSS Statistics](#) (14-day trial)
- [STATA](#) (1-week trial)
- [Excel](#) (1-month trail)

3. GO OPEN SOURCE

For long-term software use without a subscription consider the following open-source options:

- [R Studio](#) or [R](#)
- [Python](#)
- [PSP](#) (SPSS alternative)
- [Open Epi](#)
- [JASP](#)
- [Jamovi](#)

Note. Though not “free” [NCSS](#) is a popular lower-cost option to SPSS.

LEARNING STATISTICAL SOFTWARE ONLINE

There are many ways to learn how to use software online. Below we have included a few sites that may be useful to instructors and students new to working with open-source *or* proprietary software:

1. <https://stats.idre.ucla.edu/> (simply browse the “Software” tab to get help with R, Stata, SAS, SPSS, Mplus, G*Power, SUDAAN, and Sample Power)
2. [Ben Whalley’s \(free\) eBook called Just Enough R](#) (is generated by [R code found on GitHub](#))
3. [Introduction to Statistics: A Modeling Approach](#) (an online, interactive book in R)
4. [Georgia State University Recorded Workshops](#) (an introductory guide to R, Python, SAS, STATA, SPSS, and NVIVO)
5. [Social Science Research & Instruction Center Tutorials](#) (found under “Textbooks”; for SPSS and PSPP)



ONLINE LABS IN R AND PYTHON



Instructors can create a [GitHub](#) repository and then use [mybinder](#) to share the lab materials using a link with students.

- Creates separate 'work' environments for each student
- Only requires an internet connection



Labs formatted as [Jupyter](#) notebooks have the following advantages:

- Code is interactive and feedback instantaneous
- Students never need to download software
- Output can be easily saved

NEED MORE INFORMATION, CHECK OUT ...

MyBinder tutorials:

- [Zero to MyBinder in R](#)
- [Zero to MyBinder in Python](#)

Jupyter notebook resources:

- [Getting your class going with Jupyter](#)
- [Python & Data 1: Intro to Python for Data Analysis](#)

TIPS FOR RUNNING LABS USING OTHER SOFTWARE

TIP 1: Teach students how to save their code or output in lesson one

TIP 2: Consider either pre-recoding lab sessions or providing students with an annotated version of code/output

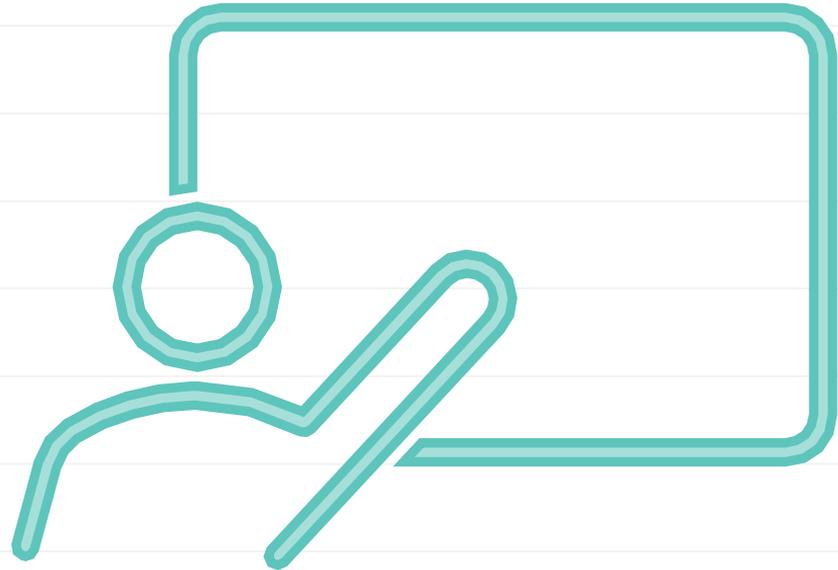
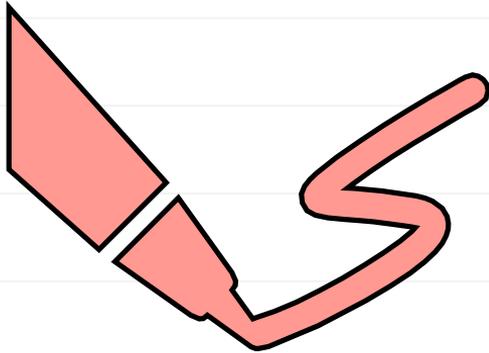
TIP 3: Host virtual office hours for labs

TIP 4: Post replies to common lab questions on the course message board



ADDITIONAL TOOLS TO ASSIST WITH LABS

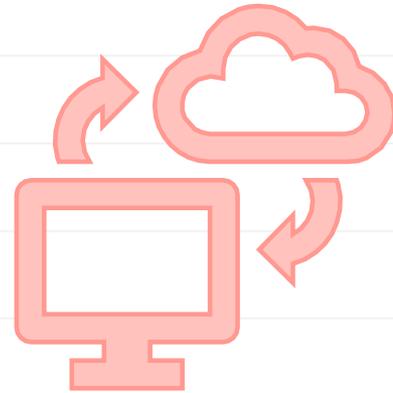
To mimic writing on the board there are few tools that may help with “problem-solving” on the fly such as [Google JamBoard](#), [Zoom whiteboard](#), and [SketchTogether](#) (has Slack integration making it a great option for group work).



QUIZZES, SURVEYS, AND POLLING

During a live lecture or lab session, short quizzes, surveys, or polls can be a great way to keep students engaged in the learning process. The following tools can be used to administer quizzes or polls virtually:

- [Survey Monkey](#)
- [Poll Everywhere](#)
- [iClicker Reef](#)
- [Google Forms](#) (add [Flubaroo](#) to grade)
- [Zoom polls](#)



PROCTORING, EXAMS, AND ALTERNATIVE ASSESSMENTS

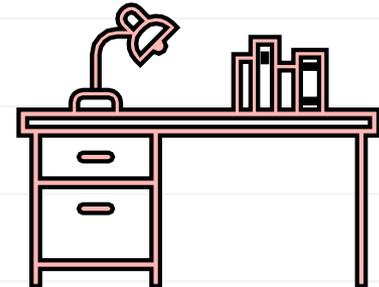
Instructors can administer timed exams using university learning management systems (Canvas, Blackboard, etc.) or [Gradescope](#). If using R, consider the [R/Exams package](#).

To prevent cheating, different proctoring options exist (e.g., [Lockdown Browser](#), [Eximity](#), and [ProctorU](#)). Check with your university to see what they recommend. Be aware *some* online proctoring tools require that students have a webcam.



More flexible methods/statistics assessments include:

- Take-home exams
- Qualitative or quantitative course papers
- Coding portfolios based on commands learned in labs



HOPE THESE RESOURCES WERE HELPFUL!

If you have any questions or comments (including any great resources we missed) please feel free to send an email to Diana Liao at info@fabbs.org.



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