

# Oral Assessments: Building a Community of Statistical Thinkers and Speakers

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# Welcome!

Link for slides & resources:

 <https://bit.ly/oral-exams>



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# *A variety of oral assessments*

**Paul** -- A follow-up assessment to a homework assignment or a component of an exam

**Allison** -- A summative midterm or final exam

# Plan

1. Rationale & experiences
2. Group discussion
3. Design
4. Peer feedback

# Why oral assessments?

# Why?

- Insight about understanding
- No memorized definitions
  - Have students talk through process
  - Ability to ask follow-up questions
- Online courses
  - More one-on-one interaction
  - Experimentation is okay!

# Exam Style

Context: Statistical Modeling

- Separate "mini-test"
- Followed first logistic regression HW
- Some questions on conceptual understanding
- Some questions on applying ideas to new scenarios



# Exam Style

Context: Statistical Theory

- Part of first midterm
- Topics: frequentist principles and Bayes vs. Frequentist
- Check conceptual understanding and fitting ideas together

# Exam Format

## Similarities

15 minutes per student

Zoom

Adaptable script

4-point assessment rubric

## Differences

Reflect on completed work

Share screens / R

# Why oral assessments?

# Personally...

Experience with oral  
exams during undergrad  
Analysis

Left me feeling  
empowered!



# Professionally...

GAISE emphasis on  
conceptual  
understanding

Facets of understanding

Witnessing the increase  
in cheating in the spring  
of 2020.

# As new faculty...

oral assessments promote a  
stronger connection with  
individual students

# Course Setting

- Second semester statistics course
- Linear model focused, with an introduction to experimental design
- Two sections -- 35 students per course
- Entirely online
- 10 weeks

# Exam Setting

Midterm Exam - Week 6

Final Exam - Week 11

Data Summaries

Inference

Data Visualization

Simulation & Theoretical Methods  
for Regression

Regression Explorations

ANOVA



# Exam Style

- "Big Picture" conceptual questions

- Distilled concepts into 5-6 questions per "unit"

"Explain to someone who has never taken a statistics course what a p-value is."

"What are the similarities and differences between a two-way ANOVA model and a multiple linear regression?"

# Grading

- Holistic rubric grading
- Scores 0-4 based on understanding of concepts
  - Ability to articulate the central concepts
  - Type of errors made

# Experiences

- Initially students are very intimidated
- Listening to students voice their ideas is incredibly insightful
- Talking aloud about statistics can be empowering

# Your turn!

- Initial reactions
- Ideas that resonate with you
- Ideas you are unsure about

Discuss these ideas with fellow educators

20:00

# Allison: *Designing an Oral Exam*

- Providing practice prior to exam
- How long should each exam take?
- Should the questions be open or closed?
- Determine how students should prepare

# Implementation

- "Think out loud" recordings & small group collaborations
- 10-minute exams
- Two "big picture" conceptual questions
- Questions published the Friday before exams

# *Facilitating the Exam*

- Zoom with a waiting room turned on

Tip: Use a software that allows for recording!

- Exam slot sign-up through Google Sheet

Tip: Set a sign-up deadline!

# Paul: *Design Guidelines*



# Questions to consider, pt. 1

- Where does your oral assessment fit into your overall assessment plan?
  - HW? Quiz? Exam? Project?
- What content will you assess?
  - Individual concepts? Big picture? Applications?
- What format will you use?
  - Time? Zoom or in-person? R? Whiteboard?
- What questions will you ask?
  - Fixed set for each student? Pick from a list? Free flowing conversation?

# Questions to consider, pt. 2

- How will you help students prepare?
  - Practice oral assessments? Sample questions? Discussion groups?
- How will you relieve student anxiety?
  - Friendly chit-chat? Let them pick first question to answer? Let them know pauses and (initial) wrong answers are okay?
- How will you assess student performance?
  - Scoring rubric? Individualized feedback?

# Your turn!

## Design an oral exam!

- **5 minutes** -- sketch out ideas for an oral exam you would like to implement
- **10 minutes** -- Get feedback on your assessment sketch

# Final Questions?



# Resources

Example Oral Assessments: <https://bit.ly/oral-exams>

Allison's JSE Commentary: <https://bit.ly/oral-exams-jse>.

Paul & Kelly McConville's Post: <https://bit.ly/ask-good-questions-oral-exams>