

The logo for Carnegie Mellon University, featuring the text "Carnegie Mellon University" in a white serif font. The text is set against a dark blue background with a grid of colorful lines (red, green, yellow, blue) that create a sense of depth and movement.

**Carnegie
Mellon
University**

Open Learning Initiative

Final Presentation

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Faculty Advisor: Prof. Valerie Ventura

Client: Norman Bier

INTRODUCTION

Definition of Open Learning Initiative

- Support learning and instruction with online courses and materials
- Share courses and materials
- Develop a community of use, research, and development

Project Summary

- Previous research disagrees regarding student performance: performances went up\down? during the pandemic compared to pre-pandemic
- We explore if similar findings can be found in the GSU dataset.

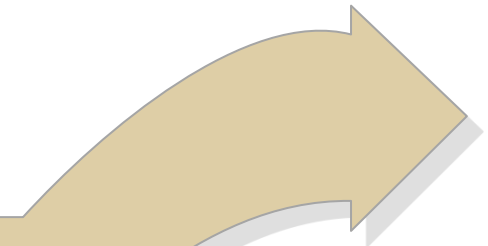
Project Goal

Define and study pattern changes due to COVID on the OLI platform for instructors and students for GSU statistics course from Spring 2019 - Fall 2020.

Project Scope

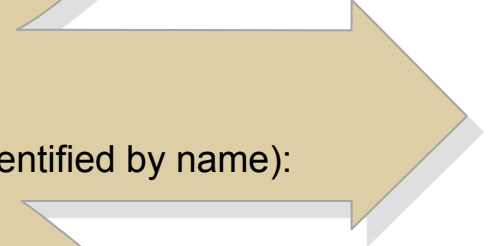
- Compare OLI use patterns for instructors and students before and during the pandemic.
- Investigate how students' performances changed during the same time period.

DATA



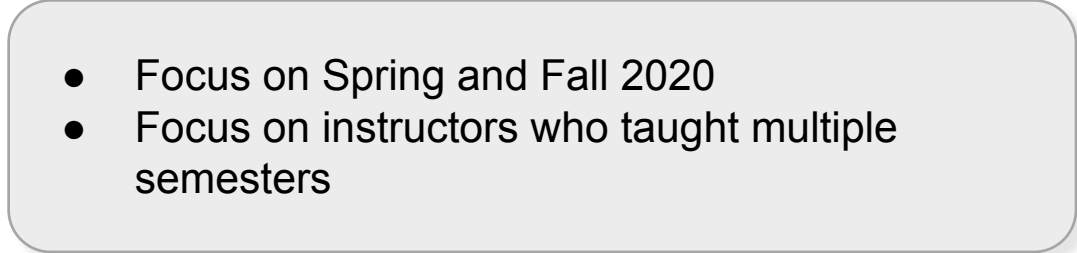
Number of students:

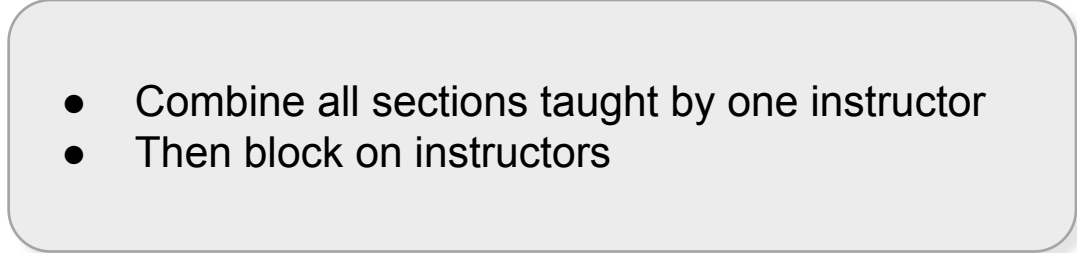
- S19 - 1,524
- F19 - 1,672
- S20 - 1,686
- F20 - 2,078

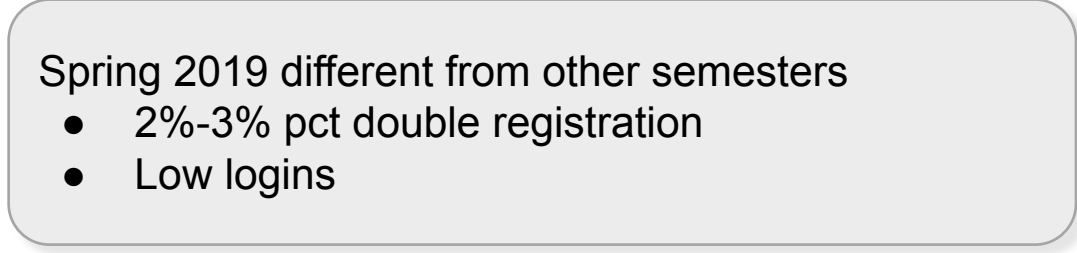


Number of instructors (identified by name):

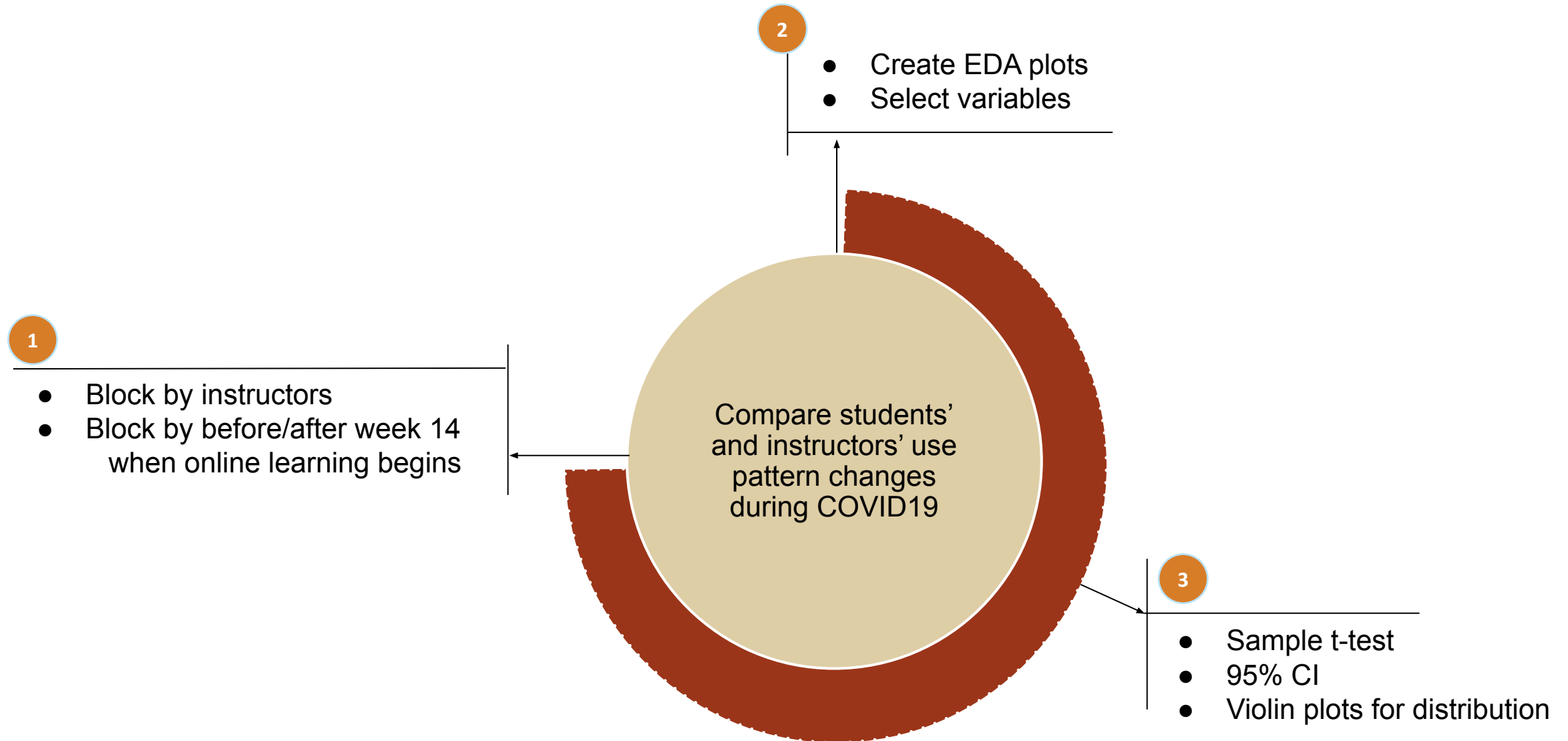
- S19 - 2
- F19 - 3
- S20 - 3
- F20 - 2

- 
- Focus on Spring and Fall 2020
 - Focus on instructors who taught multiple semesters

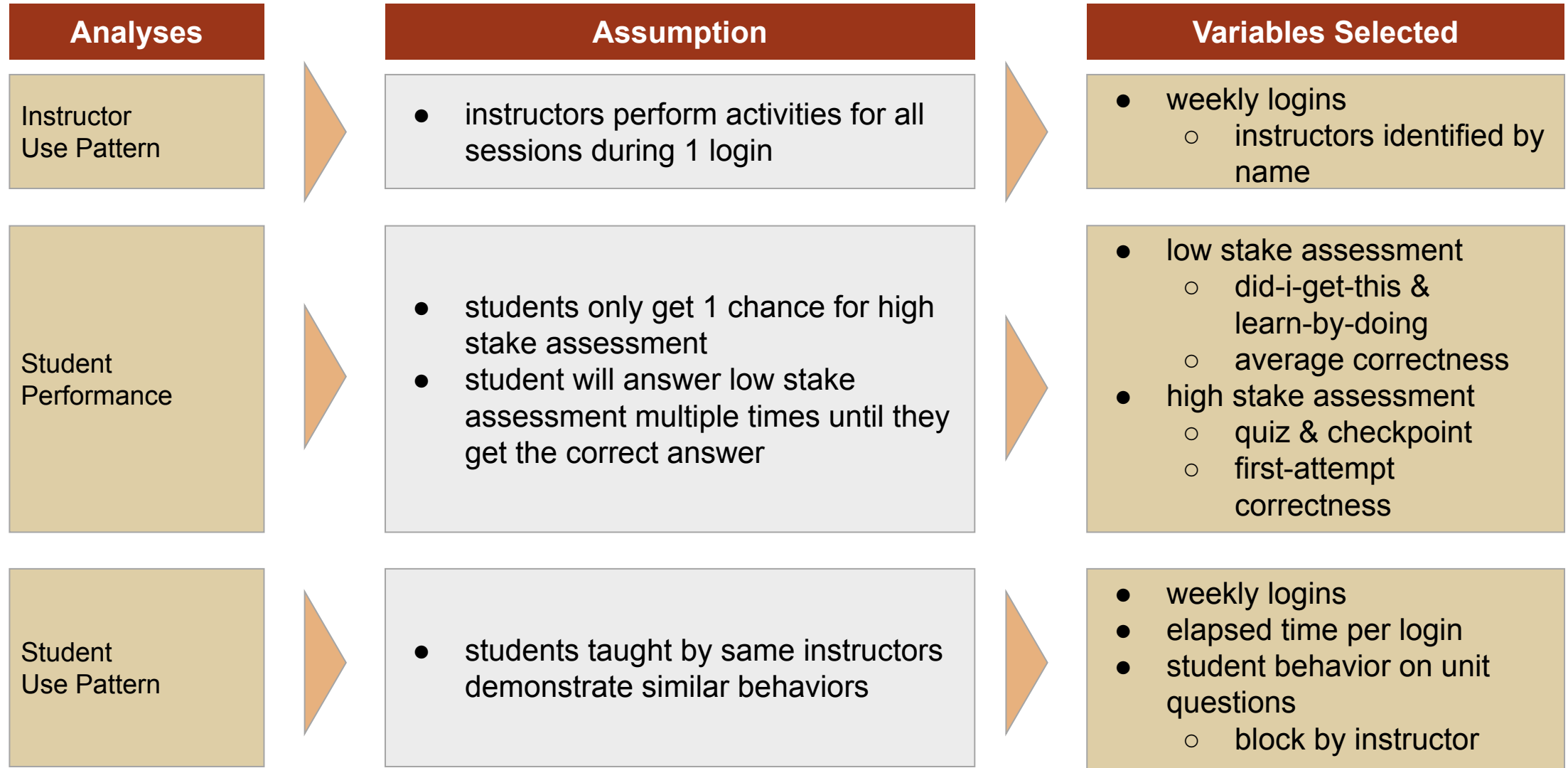
- 
- Combine all sections taught by one instructor
 - Then block on instructors

- 
- Spring 2019 different from other semesters
- 2%-3% pct double registration
 - Low logins

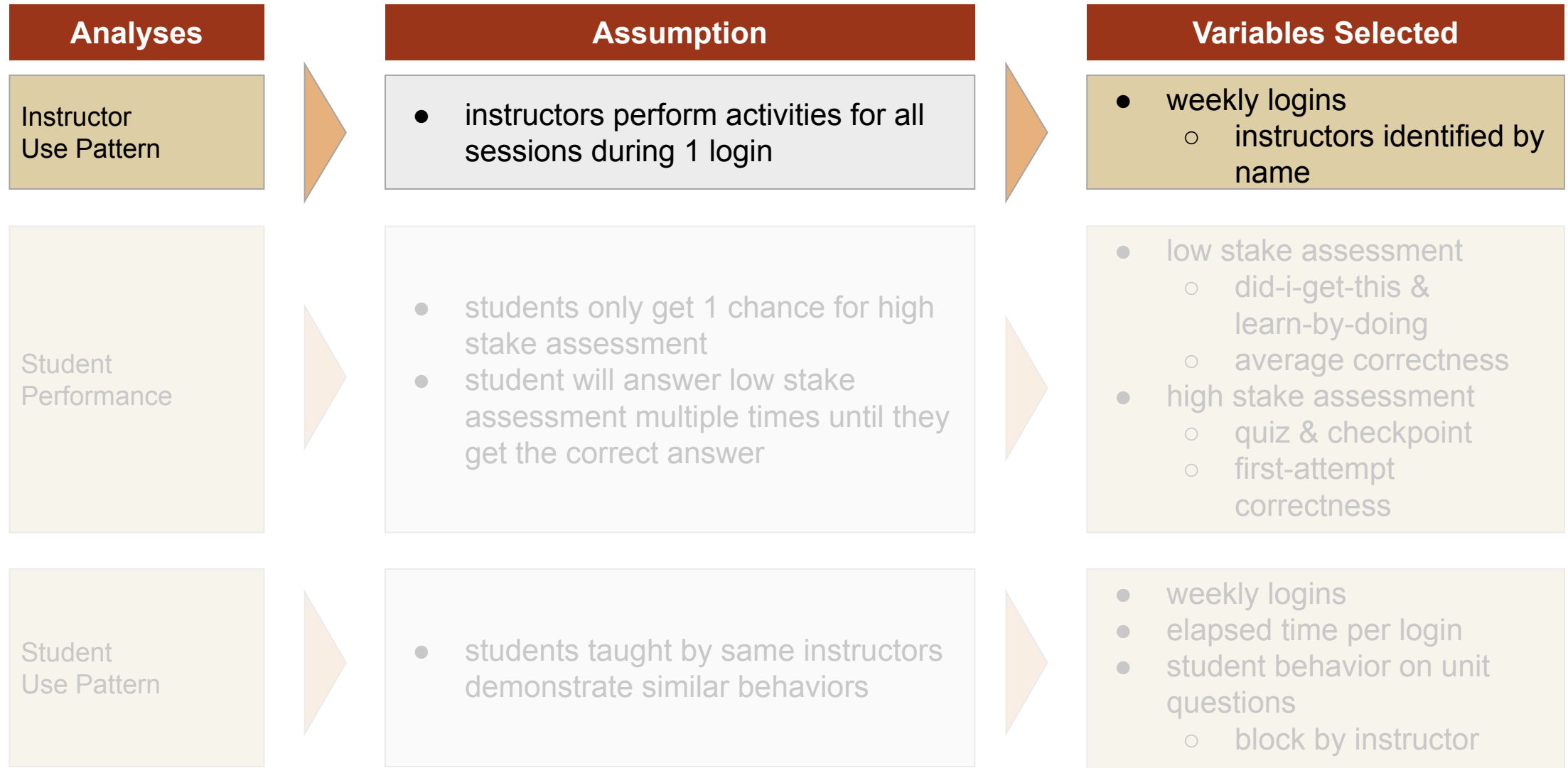
METHOD



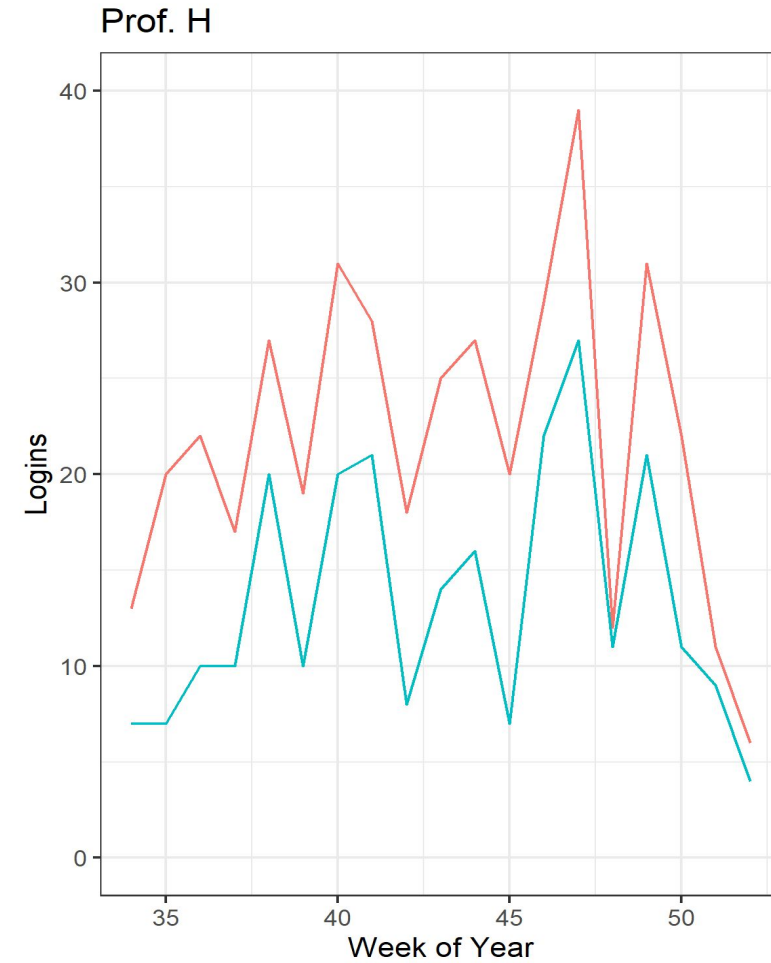
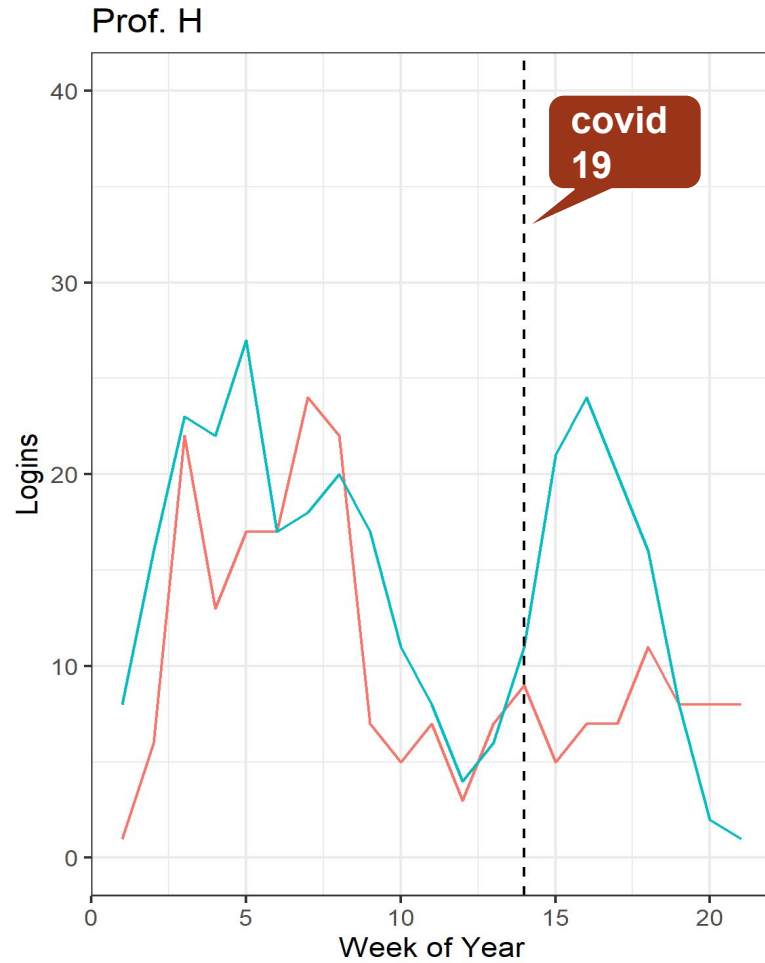
OUTLINE



OUTLINE



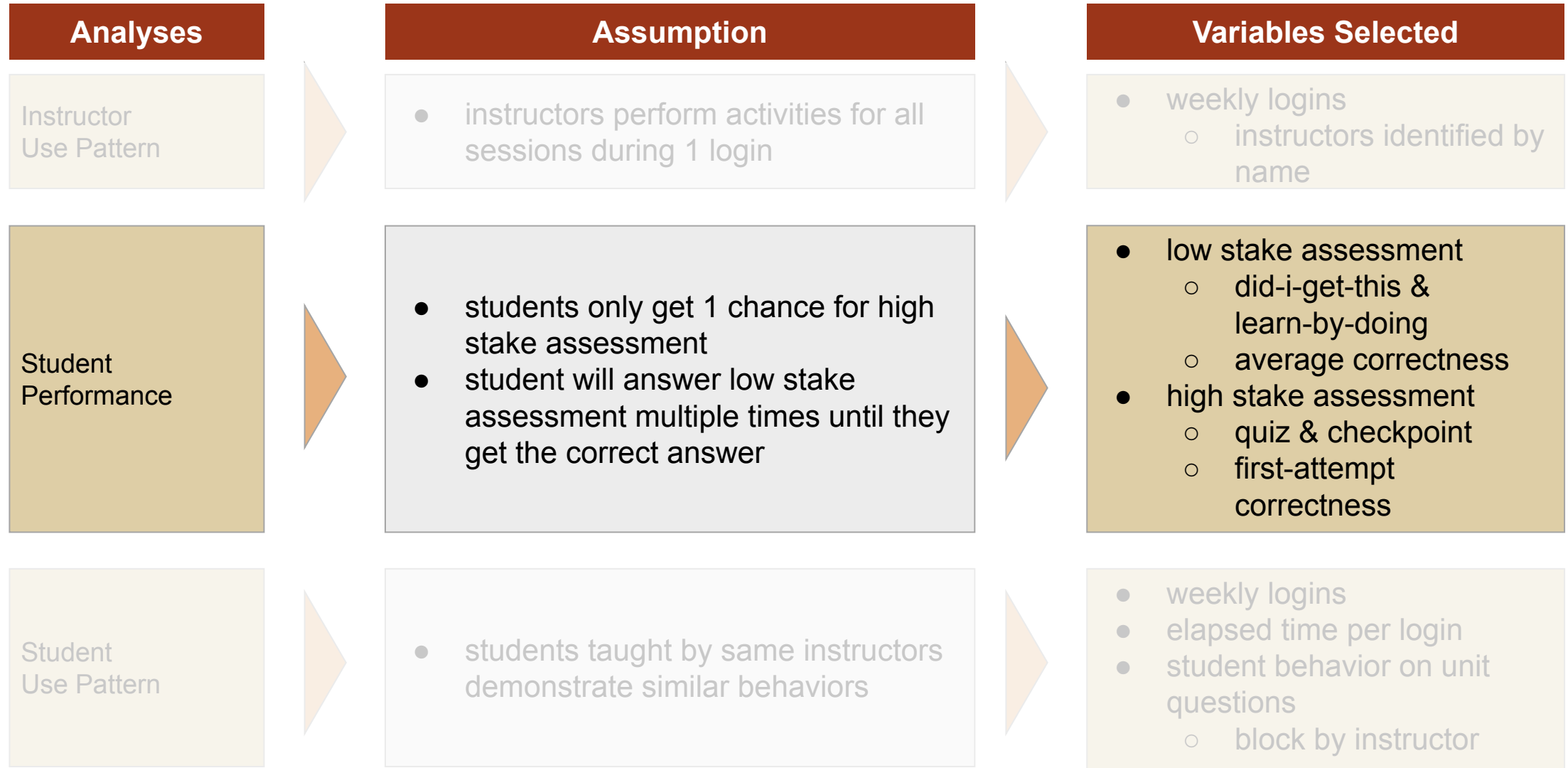
Instructor weekly logins decreased significantly in Fall 2020 but not in Spring 2020



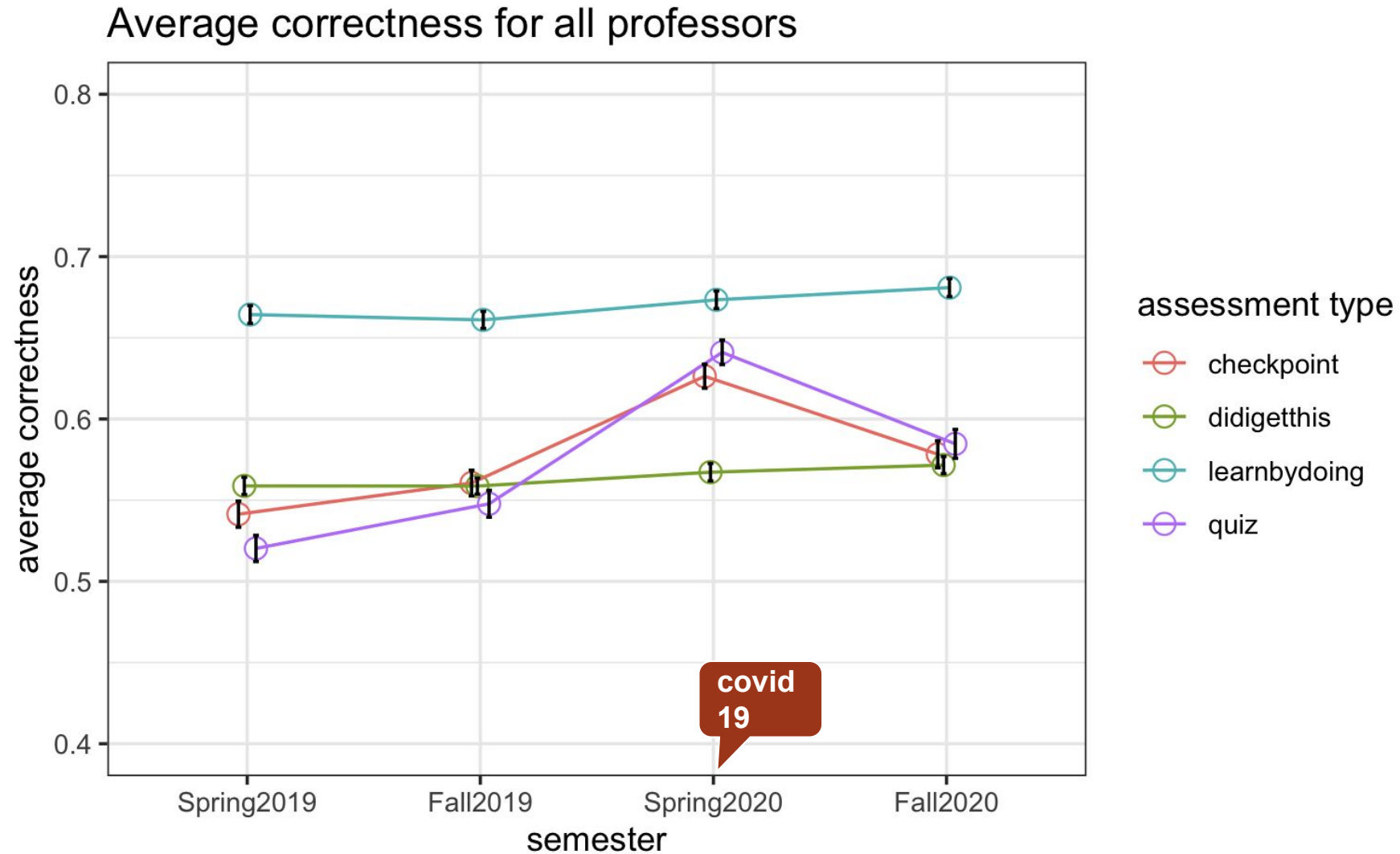
Instructor weekly logins decrease significantly in Fall 2020, but not in Spring 2020

T - Test Result			
Semester	P-value	Mean in 2019	Mean in 2020
2019 Fall vs. 2020 Fall	0.001	21.95	13.42
2019 Spring vs. 2020 Spring (before week 14)	0.22	12.00	15.92
2019 Spring vs. 2020 Spring (after week 14)	0.08	7.75	13.50

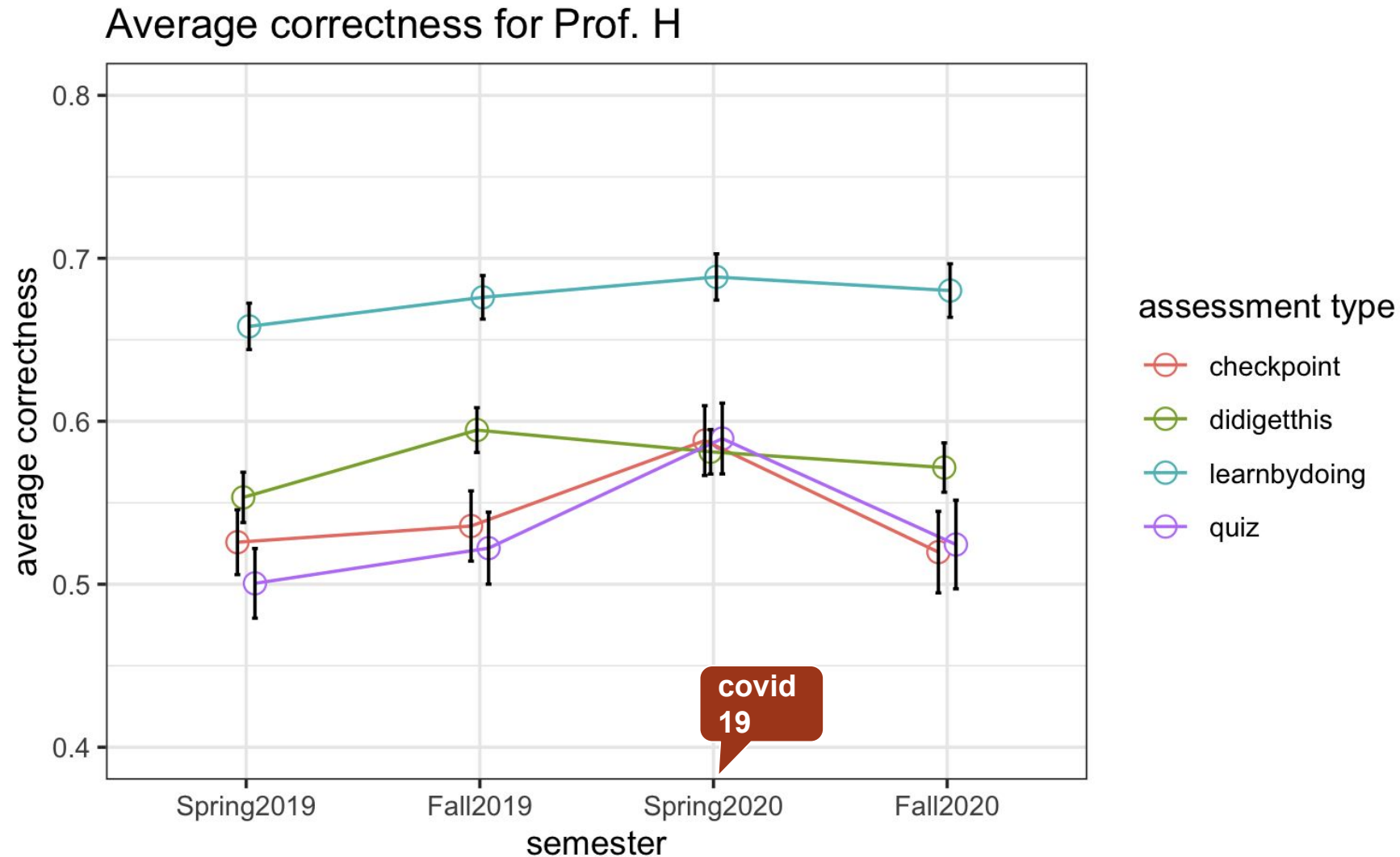
OUTLINE



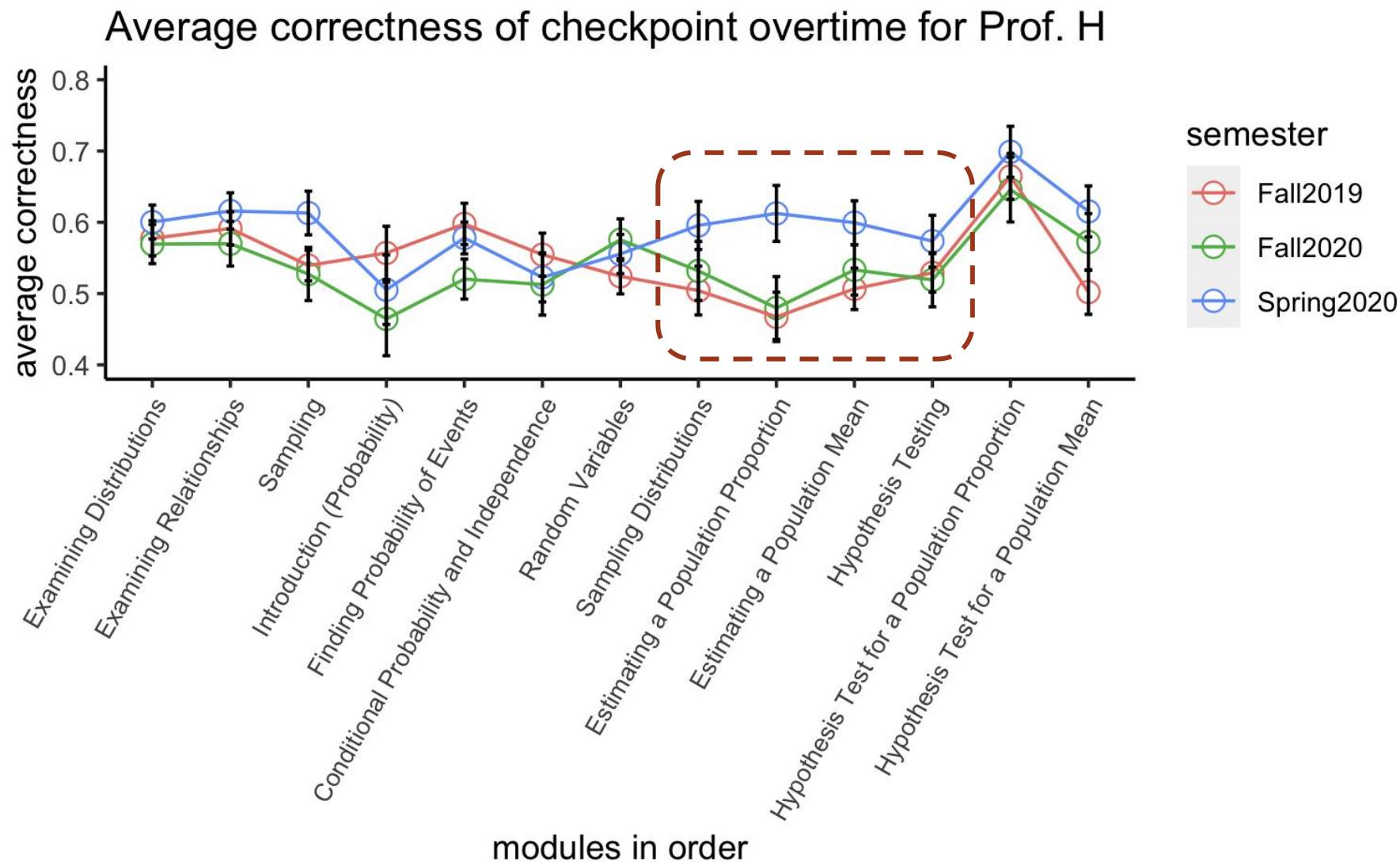
Students performance increased in spring 2020 only on the high stake assessments.



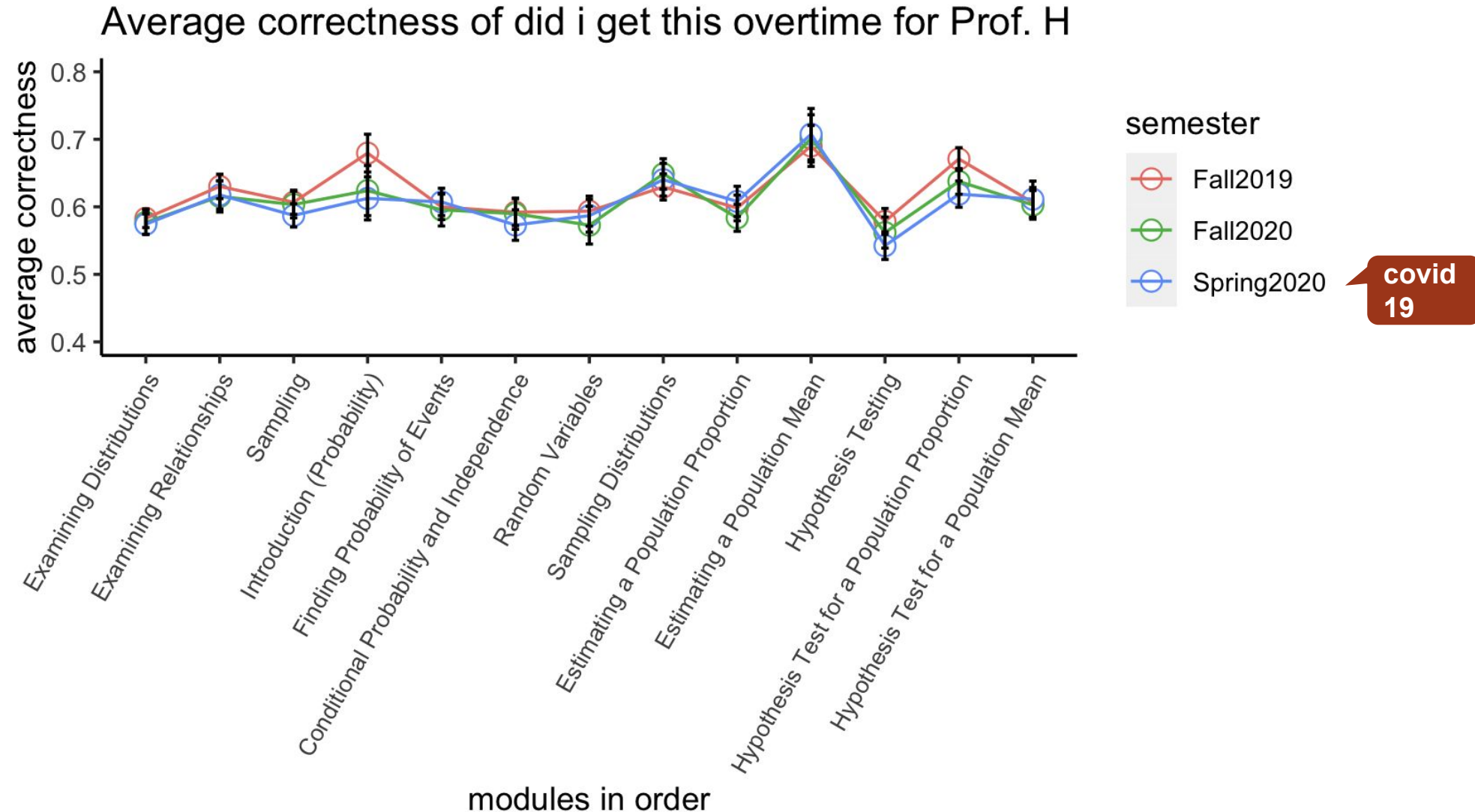
Students performance for Prof. H increased in spring 2020 only on the high stake assessments.



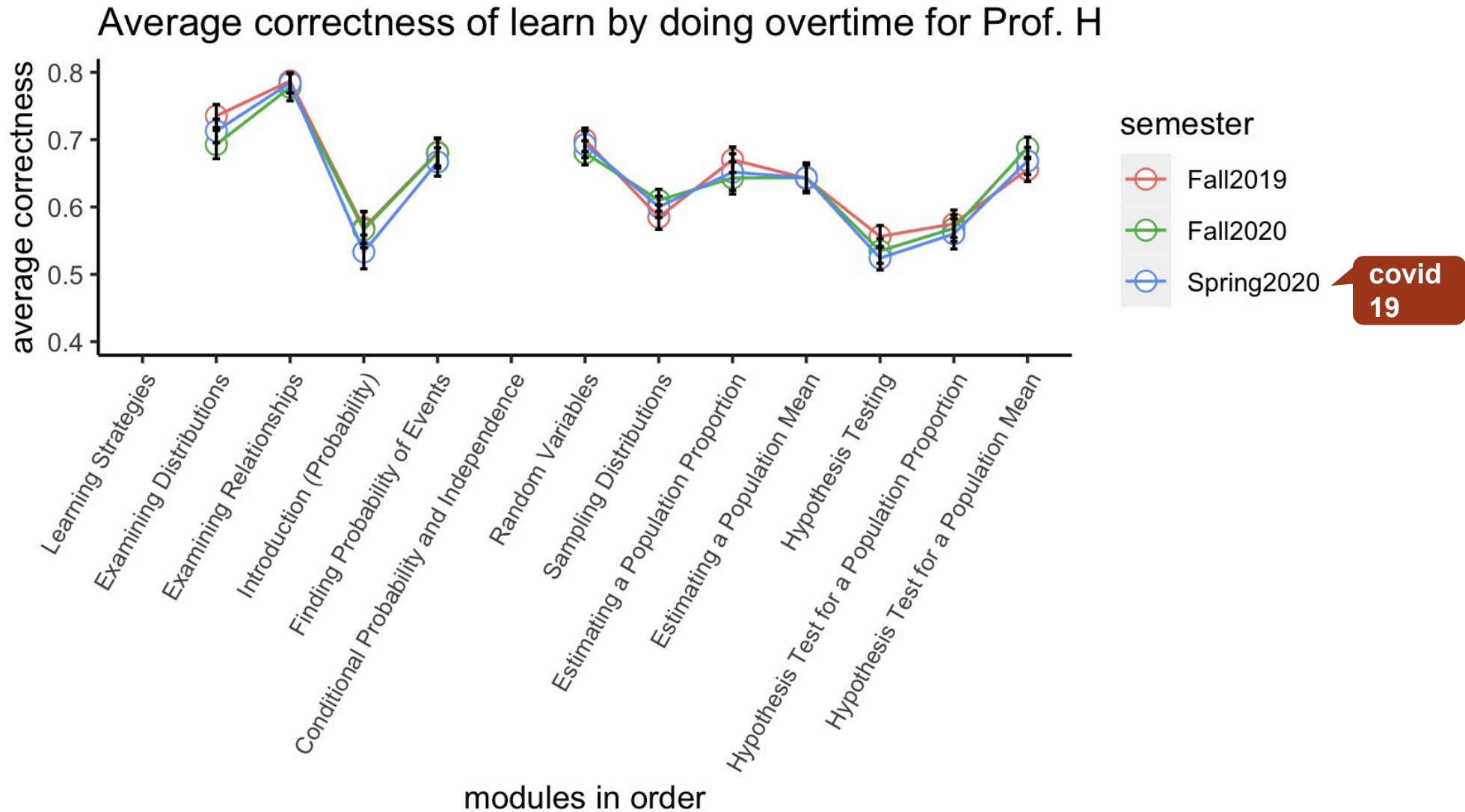
Performance on checkpoint for every module also increased in spring 2020



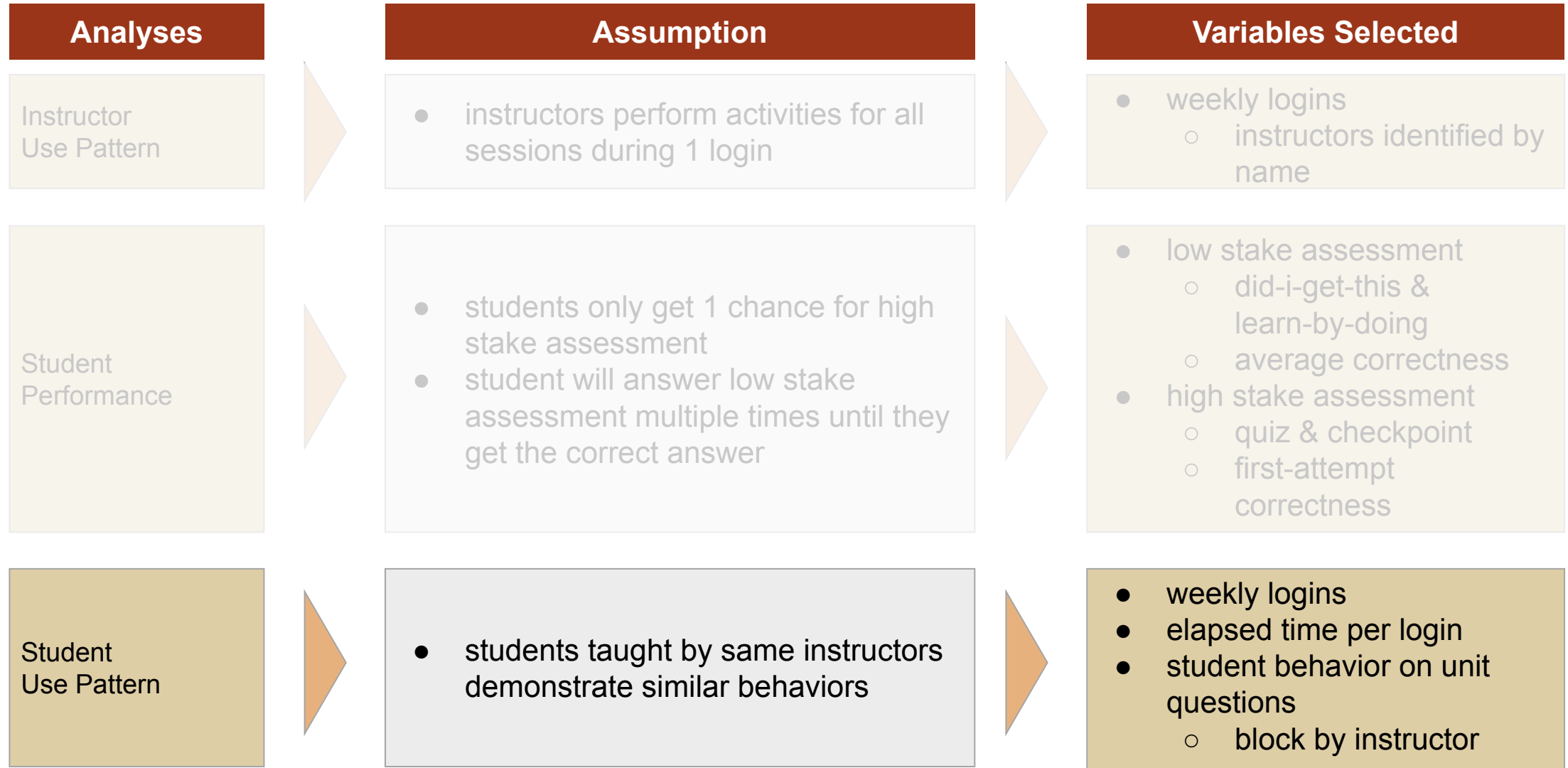
Performance on did-i-get-this stayed steady overtime for every module



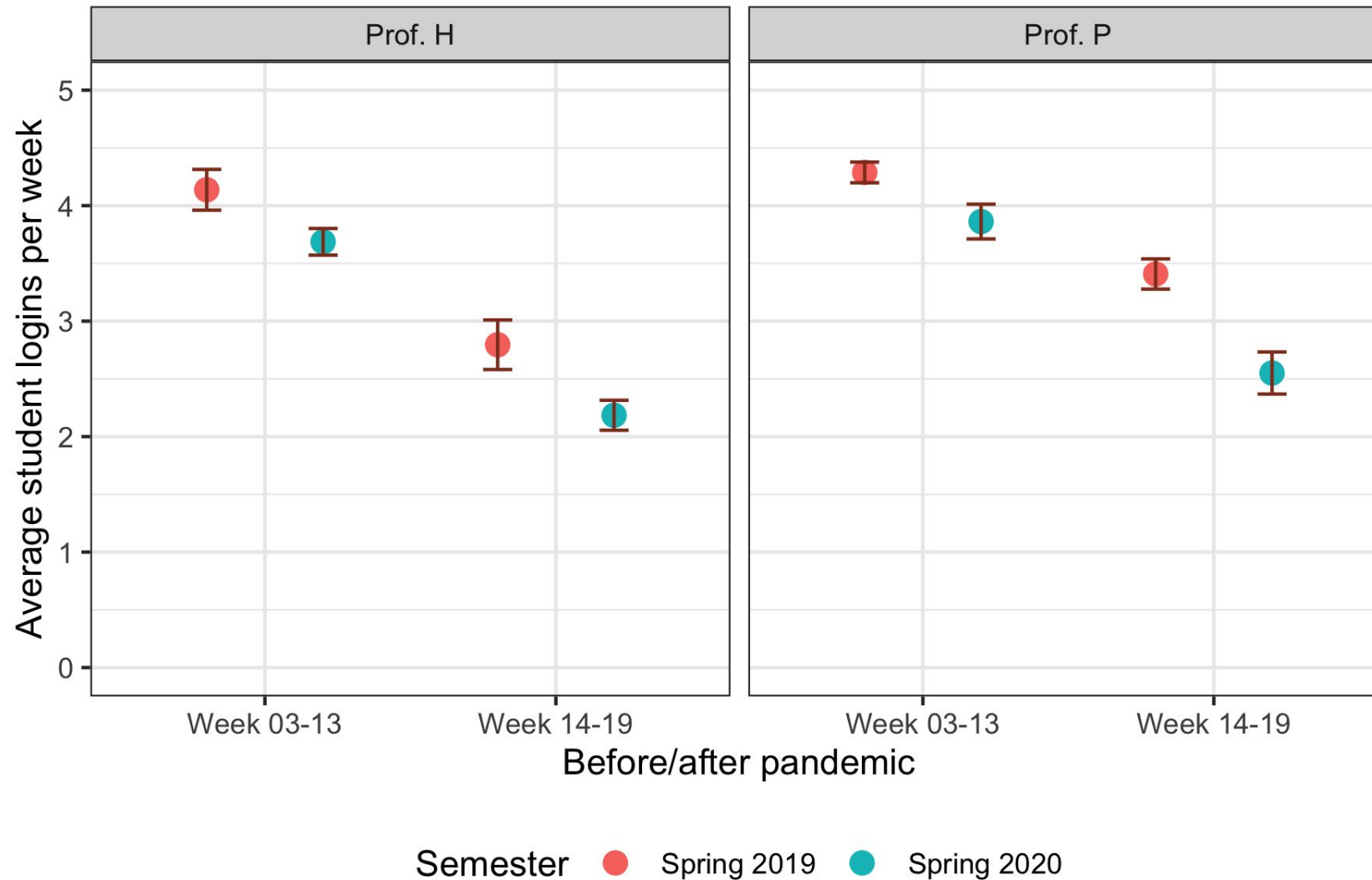
Performance of learn-by-doing for every module stayed steady overtime



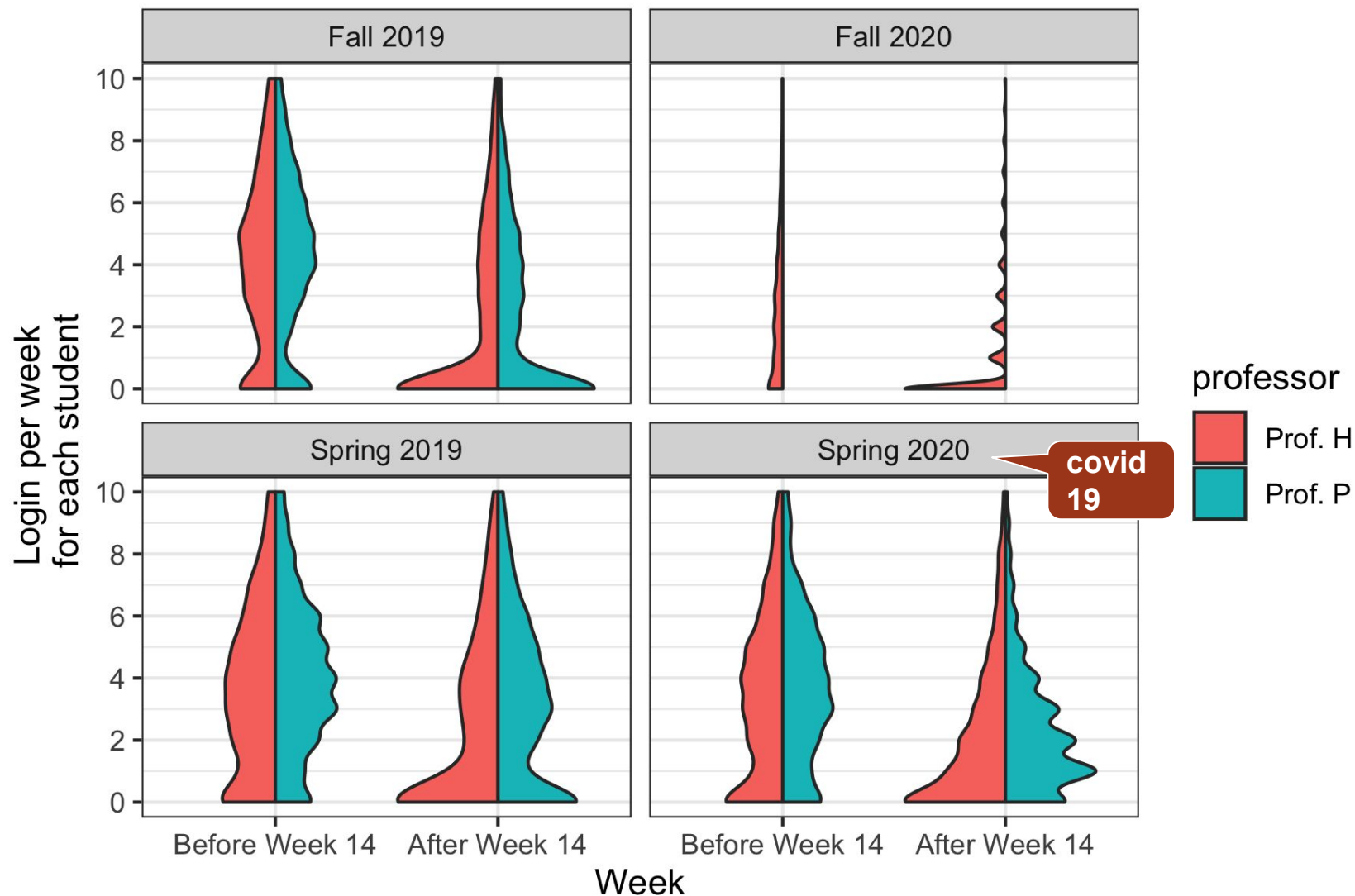
OUTLINE



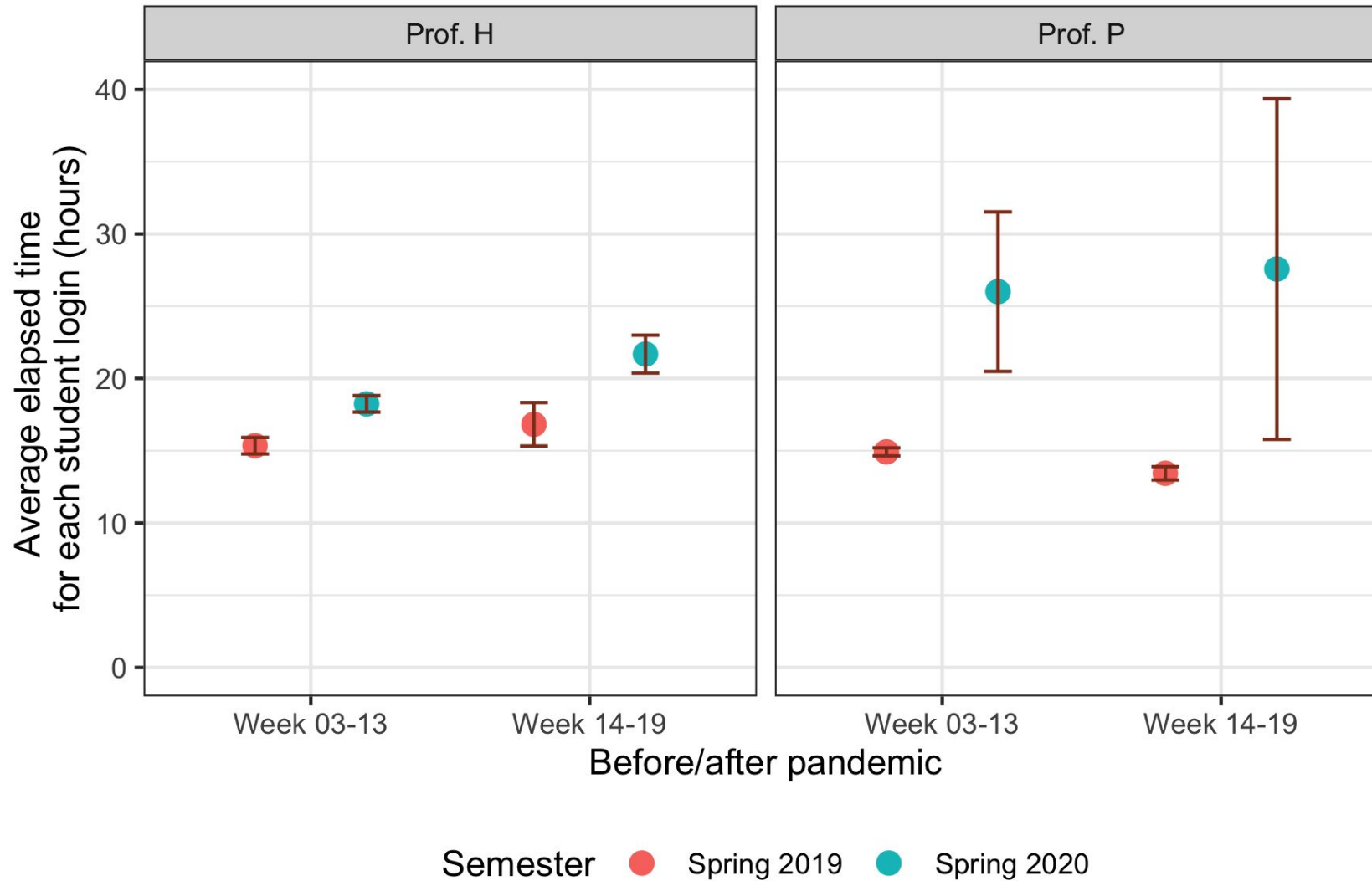
Students logins decreased in Spring 2020, and students logins decreased as the semester proceeded



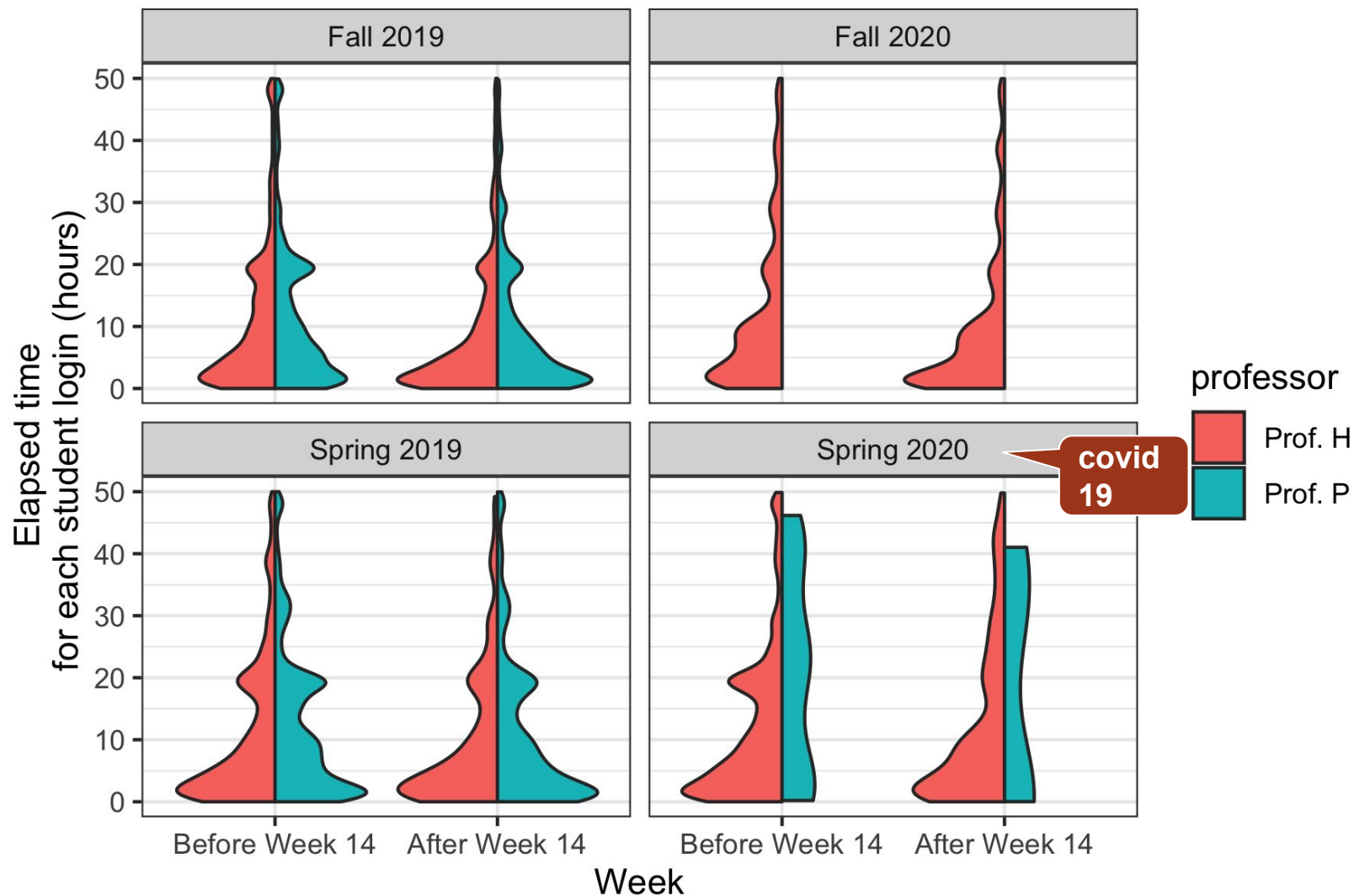
In Spring 2020, students weekly logins decreased after the start of online learning



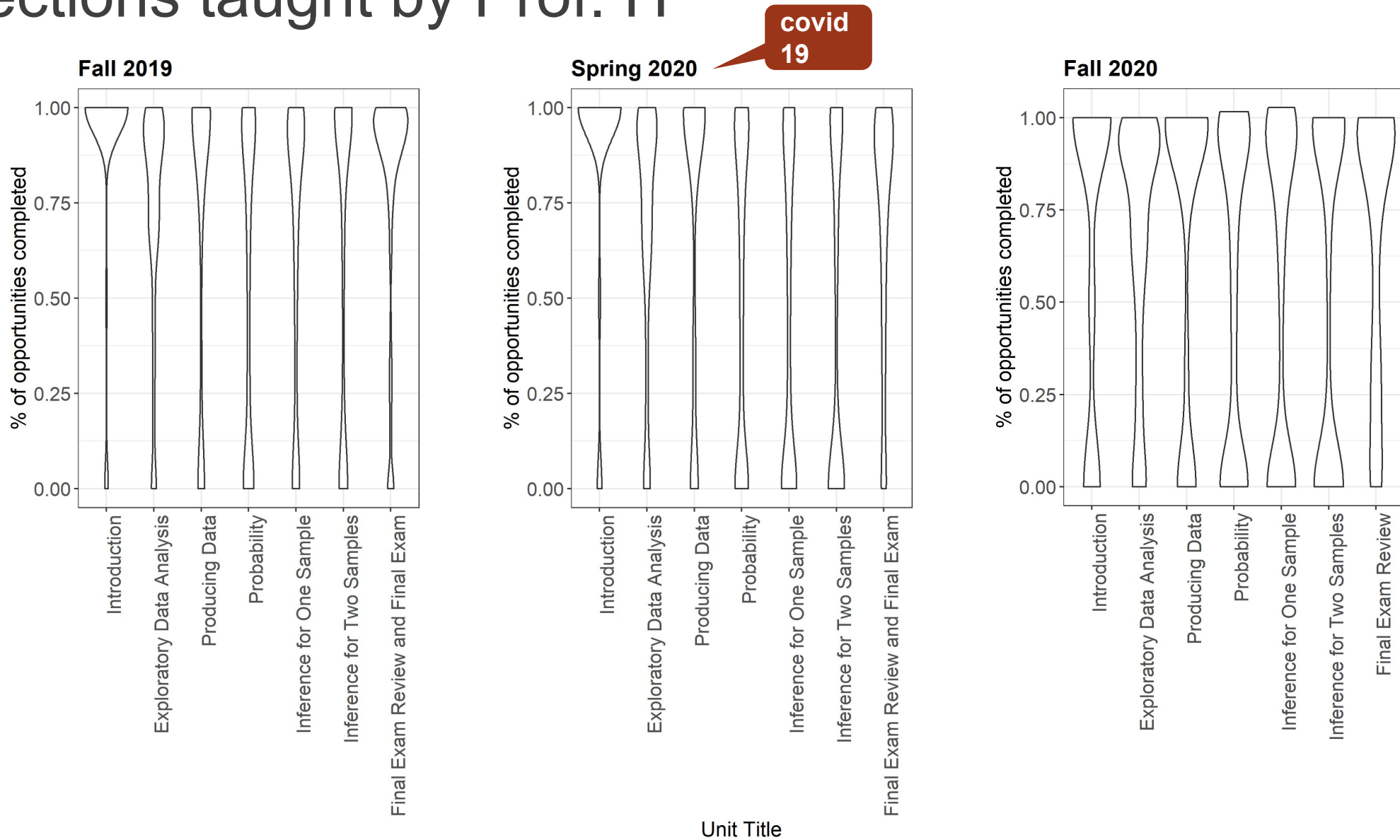
Students spent more time per session in Spring 2020, and the time spent is consistent through each semester



In Spring 2020, students tended to spend more time per session after the start of online learning



Students were less engaged with unit questions in Fall 2020 in sections taught by Prof. H



Students were less engaged with unit questions in Fall 2020

	Percentage of Students Completed 0% of All Unit Questions		
Instructors	Fall 2019	covid 19 Spring 2020	Fall 2020
Prof. H	2 / 238 = 0.84%	4 / 235 = 1.70%	9 / 244 = 3.69%
Prof. L	4 / 119 = 3.36%	5 / 121 = 4.13%	13 / 228 = 5.70%
Prof. P	5 / 240 = 2.08%	3 / 122 = 2.46%	-
Prof. M	1 / 234 = 0.43%	-	6 / 63 = 9.52%

DISCUSSION

Takeaway

Instructor use pattern:

- Instructor weekly logins decreases significantly in Fall 2020 (compare to Fall 2019)
- Difference in weekly logins is not significant in Spring 2020 (compared to Spring 2019)

Student use pattern:

- Students log in fewer times but spend more time per section in Spring 2020 compared to Spring 2019
- In 2020 Spring, students log in fewer times but spend more time per section after the pandemic
- Students are less engaging with unit questions in Fall 2020

Student performance:

- Performance only on the high stake assessments increases in spring 2020 (all sections combined & Prof. H)
- Performance of checkpoint for every module increases in spring 2020
- Performance of did-i-get-this for every module stays steady overtime
- Performance of learn-by-doing for every module stays steady overtime

DISCUSSION

Limit of Our Project

- **Possible bias in instructor use pattern changes**
 - Much fewer variables recorded for instructors
 - Very few instructors are identified by name. Most records are aggregated.
- **Change of platform**
 - Implementation of exam platforms in Fall 2020, introducing better ways to monitor remote students
- **Change of course policy due to COVID**
 - If instructors allow students to drop more high/low stake assessments than before, students may not perform as well on these assessments as previously.

Thank You!