

PSYCH 10 Tutorial Session · Fall 2026

Week 3 · The Vault of Fallen Labels

Name

SUNet ID (the part before @stanford.edu)

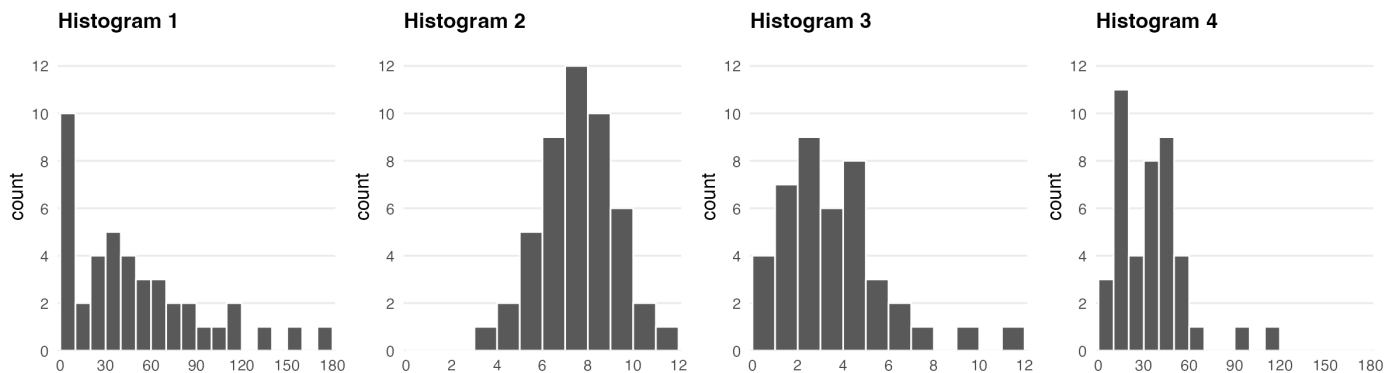
Section (e.g., TUES 9:30)

Please write legibly so the teaching team can log your attendance: if we can't read your name, we can't give you credit.

The situation

Last night a pipe burst in the Data Archive under the Psychology building at **Strangeford University**, where **Archivist Q. Ledger** keeps every dataset ever collected on campus. Jo (on Archive duty since the Sleep Lab Incident) waded in and rescued four histograms from last year's class survey of 42 students. The water washed the axis titles off all four, though the numbers along the axes are still readable. One histogram was so smeared that Q. Ledger redrew it from memory.

The four histograms are drying on the line below, and the four variables they came from are listed under them. Q. Ledger says: **"Match each histogram to its variable, and tell me which one is mine. When you've done that, I have a second job for you."**



The four variables (from last year's class survey of 42 students)

- A** Hours spent studying yesterday
- B** Minutes to get to campus this morning
- C** Hours of sleep last night
- D** Minutes on social media yesterday

Part 1: match the histograms to the variables

For each histogram, write the letter of the variable you matched it to, the number of the guideline you used (the four guidelines are on the back of this sheet), and the feature of the histogram you based the match on.

Histogram	Variable	Guideline #	What you saw
1			
2			
3			
4			

Which histogram did Q. Ledger draw from memory, and what gave it away? Did the people around you make the same matches? Where you disagreed, what did you find convincing?

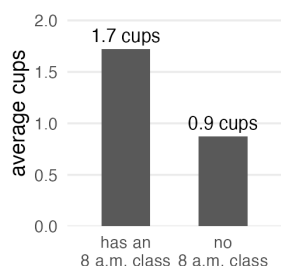
Four guidelines for matching a histogram to a variable

#	Guideline
1	Possible values. What is the smallest value this variable could take, and what is the largest? Could anyone have a value of exactly zero? Look at where the bars start and where they stop.
2	Shape. Where are most of the people, and is the tail on the left or on the right? Think about what would put most people at one end of the range for this variable.
3	Unusual features. Is there a gap, a second peak, or one bar that is much taller than the bars next to it? Think about whether the way the data were collected could have produced that feature.
4	Roughness. A real sample of 42 people usually makes an uneven histogram. If one of these looks very smooth, ask how it could have ended up that way.

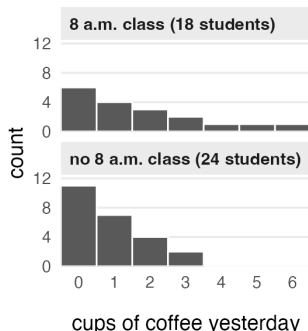
Part 2: the *Daily's* chart

Ari Byline, who reports on data for the *Strangeford Daily*, was in the Archive when the pipe burst. Ari was copying two columns from the same class survey: how many cups of coffee each of the 42 students drank yesterday, and whether they have a class at 8 a.m. (18 do, 24 don't). From those two columns Ari made the chart below and wrote the headline "**8 a.m. classes double coffee intake.**" The *Daily* goes to print at 3 p.m. Q. Ledger doesn't trust the headline and has had Jo plot the same two columns three other ways. "**The difference between those two averages comes from a few students. Find them in Jo's plots, and then tell me which plot I should send the *Daily* instead.**"

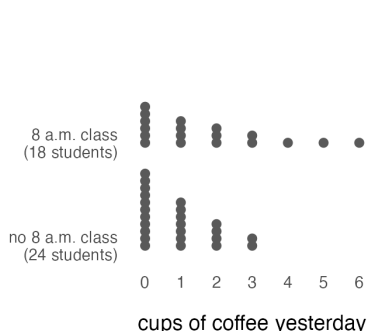
The *Daily's* chart:
average cups yesterday



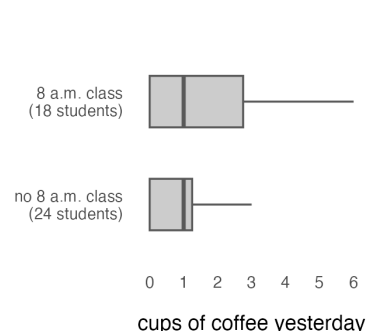
Jo's plot 1:
one histogram per group



Jo's plot 2:
one dot per student



Jo's plot 3:
a box plot per group



1. Find them. How many students are responsible for the difference between the two averages, and how much coffee did each of them drink?

2. What each plot shows. For each of Jo's three plots, write one thing you can see in it about these 42 students that you can't see as easily in any of the other plots on this page. Then circle the plot you would send the *Daily* in place of its chart.

Jo's plot 1	
Jo's plot 2	
Jo's plot 3	

3. The headline. The *Daily's* headline says that students with an 8 a.m. class drink twice as much coffee as students without one. That is true of the two averages. Is it an accurate description of the students themselves, given what you found in question 1? Write a headline that describes what the survey shows about these 42 students.

4. The reason. The headline says that having an 8 a.m. class made these students drink more coffee. But the students were not sorted into the two groups at random; they chose their own classes, so the two groups could differ in other ways as well. Name two processes, other than the class itself, that could have produced the difference in coffee drinking.