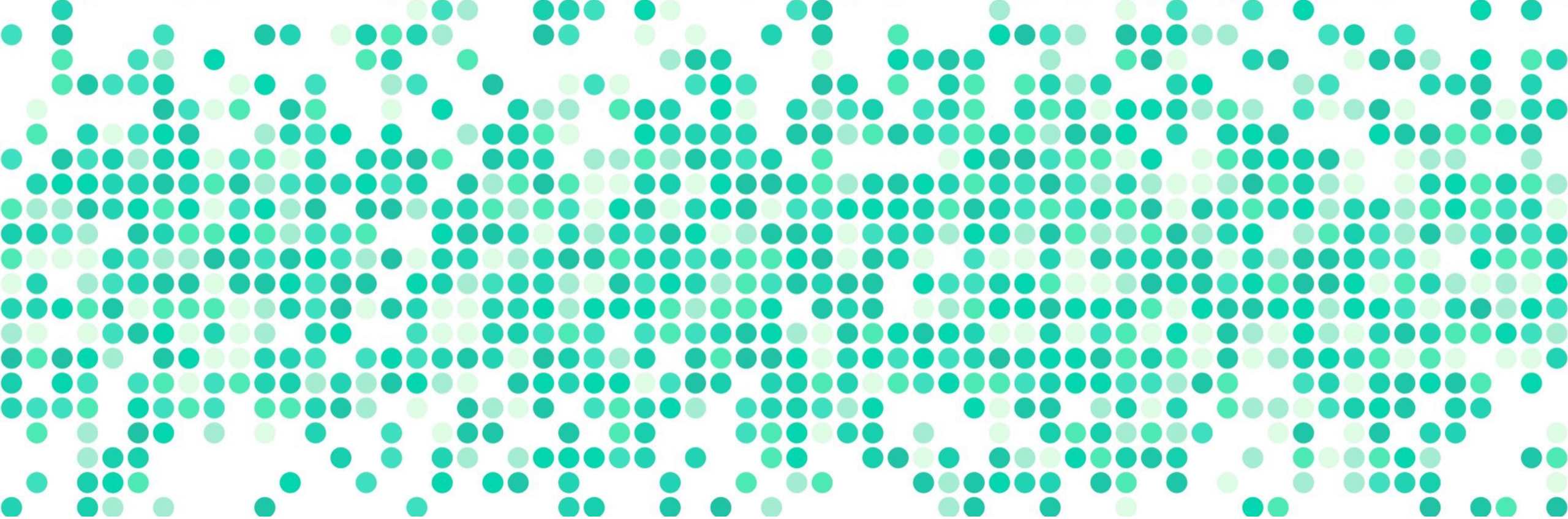
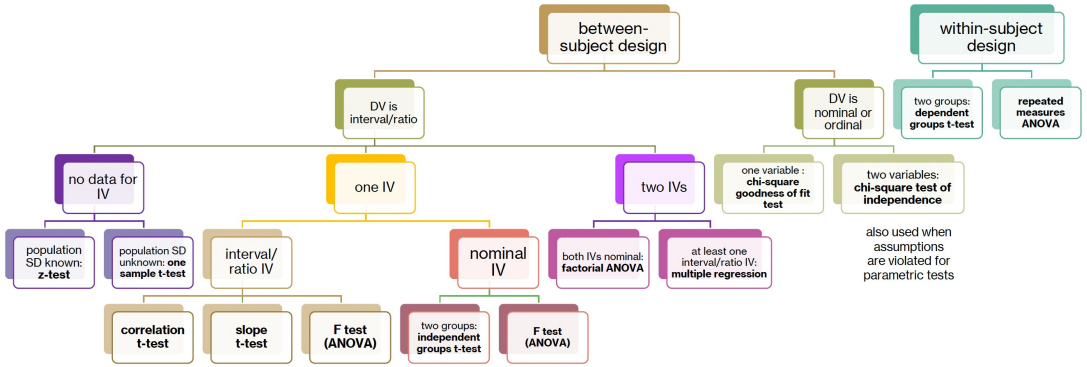


DATA ANALYSIS

Week 15: Final Review!

final exam logistics

- you will be **provided**:
  - hypothesis chart
  - test table (with ALL dfs and APA reporting example)
- you can **bring**:
  - ONE help sheet



One DV, one nominal IV

Ratio/interval level measurements
Dependent observations (repeated measures)

test	degrees of freedom	process
dependent groups t-test IV has **only two levels**	$df = n - 1$ n : number of participants	• $H_0: \mu_D = 0$ • $H_1: \mu_D \neq 0$ • find $t_{critical}$ based on one vs. two tailed test, df, and α level • compute $s_{M_D} = \frac{s_D}{\sqrt{n}}$ • compute $t_{observed} = \frac{M_D - \mu_D}{s_{M_D}}$ • find p-value for $t_{observed}$ • check whether $t_{observed}$ is beyond $t_{critical}$ and p-value < α. if so, reject null hypothesis! • **APA reporting example (PS7):** There is a significant difference in pain tolerance between repeating swear words (M = 69.4 seconds) versus neutral words (M = 55.4 seconds), t (9) = 3.91, p = .004. The means indicate that swear words increased the time that people were able to keep their hand in ice water.

upcoming review/office hours

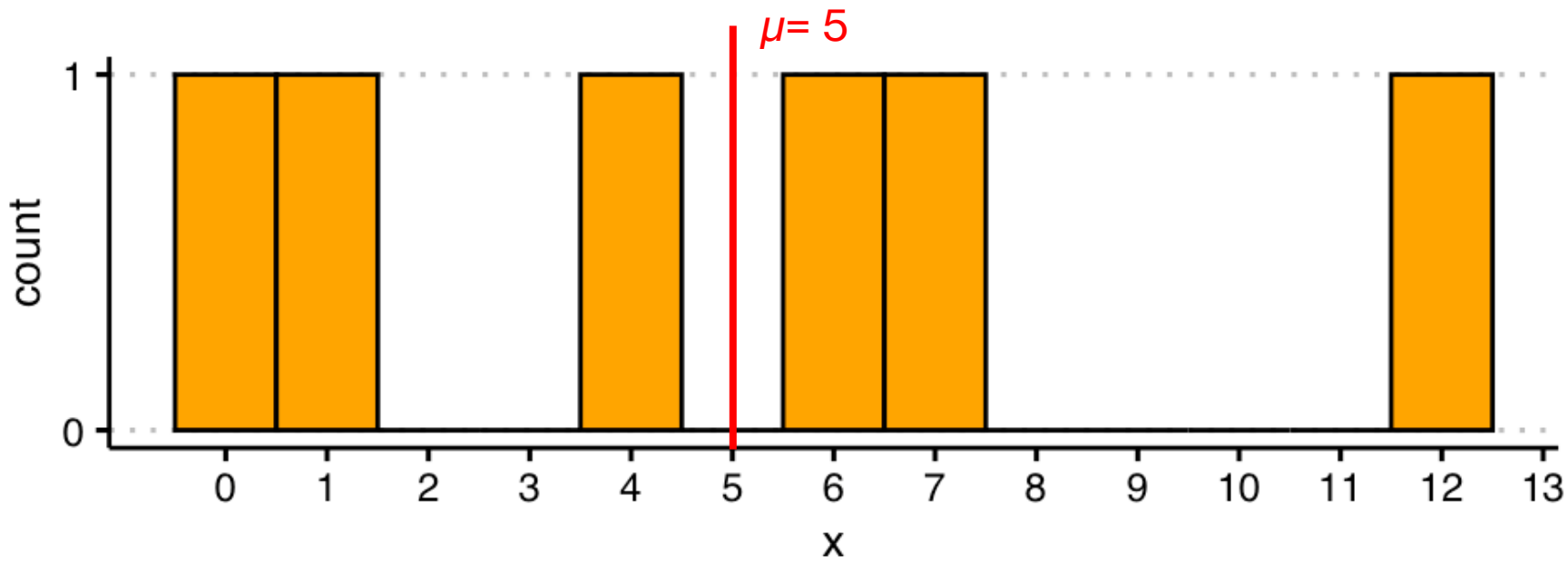
- Wednesday (Prof. Kumar): 2.30 - 5 pm
  - Kanbar 217
- Thursday (Prof. Kumar):
  - Kanbar 217
  - 10 – 11.30 am
  - 12.30 – 4 pm
- Thursday (Yanevith): 7.30 pm – 9 pm
  - Mills 127

14	F: April 26, 2024	W14 continued…
15	T: April 30, 2024	**Problem Set 7 due / Opt-out Deadline**
15	W: May 1, 2024	W15: Odds and Ends
15	T: May 2, 2024	**Data Around Us / Practice Questions due**
15	F: May 3, 2024	**Conceptual Final (In Class)**
16	T: May 7, 2024	**Computational Final Computational due**
16	T: May 7, 2024	**Last Class Survey due**
16	W: May 8, 2024	**Wrapping Up!** (Last Class)
17	T: May 14, 2024	**PS7 Revisions due**
17	M: May 14, 2024	**ALL late work due**

review of concepts

- standard deviation and standard error
- similarities and differences in statistical tests
- repeated measures ANOVA
- degrees of freedom + F-tests

visually estimating standard deviation



type I and type II error

- you are evaluating whether time spent on TikTok in the week leading up to an exam has a significant effect on exam performance. What would represent a “false alarm” given this scenario?

factorial design

- in our factorial ANOVA model that we used in class, we evaluated the effects of two factors, supplement dosage (0.5 mg or 2 mg) and the type of supplement (ascorbic acid or orange juice) on the odontoblast length of guinea pigs. What conclusion could you draw about the data if the plot looks like this?