

CogLab: Project Check-In

WEEK 9

research opportunities in psychology

- today, 5-6 pm, Kanbar 107
- faculty research profiles and info about upcoming availability



formative assignment #2

- descriptive statistics and plotting in R
 - due Nov 4

7	Monday, Oct 21, 2024	Project Milestone #4 (Full Experiment) Due
8	Tuesday, October 22, 2024	W8: Manipulate Data
8	Thursday, October 24, 2024	W8 continued...
8	Sunday, October 27, 2024	Formative Assignment (jsPsych) Resubmission Due
9	Tuesday, October 29, 2024	W9: Making Inferences
9	Thursday, October 31, 2024	W9 continued...
9	Sunday, November 3, 2024	Formative Assignment (R Descriptive) Due
10	Tuesday, November 5, 2024	Weeks 10-12: Data Collection
10	Thursday, November 7, 2024	Weeks 10-12: Data Collection
10	Sunday, November 10, 2024	Formative Assignment (R Inferential) Due
11	Tuesday, November 12, 2024	Weeks 10-12: Data Collection
11	Thursday, November 14, 2024	Weeks 10-12: Data Collection
11	Sunday, November 17, 2024	Formative Assignment (R Descriptive) Resubmission Due
11	Monday, November 18, 2024	Project Milestone #5 (Pre-Registration) Due

plan for next month

- class format
 - 30-45 minutes: lecture component / R practice
 - remaining time: project work
- project roadmap
 - fix last few details (practice feedback, instructions, data)
 - **public** pre-registration
 - start Sona data collection
 - last few days: Prolific data collection
 - work on poster design

9	Tuesday, October 29, 2024	W9: Project Work
9	Thursday, October 31, 2024	W9 continued...
9	Monday, November 4, 2024	Formative Assignment (R Descriptive) Due
10	Tuesday, November 5, 2024	Weeks 10-12: Data Collection
10	Thursday, November 7, 2024	Weeks 10-12: Data Collection
10	Monday, November 11, 2024	Project Milestone #5 (Pre-Registration + Checklist) Due
11	Tuesday, November 12, 2024	Weeks 10-12: Data Collection
11	Thursday, November 14, 2024	Weeks 10-12: Data Collection
11	Sunday, November 17, 2024	Formative Assignment (R Descriptive) Resubmission Due
11	Monday, November 18, 2024	Formative Assignment (R Inferential) Due
12	Tuesday, November 19, 2024	Weeks 10-12: Data Collection
12	Thursday, November 21, 2024	Psychonomics Conference: NO CLASS
12	Friday, November 22, 2024	Project Milestone #6 (Analyses: Deadline 1) Due
13	Tuesday, November 26, 2024	THANKSGIVING BREAK!!! NO CLASS
13	Thursday, November 28, 2024	THANKSGIVING BREAK!!! NO CLASS
14	Monday, December 2, 2024	Project Milestone #6 (Analyses: Deadline 2) Due

project checklist

- project checklist

CogLab Project Checklist

Task	Check if done
Sanity Check <ul style="list-style-type: none"> <input type="checkbox"/> Is the attention check response being recorded? <input type="checkbox"/> Is the free association response being recorded? <input type="checkbox"/> Can you differentiate between training / attention / association / prime / target? <input type="checkbox"/> Can you differentiate between prime and target trials? <input type="checkbox"/> Can you differentiate practice and test trials? <input type="checkbox"/> Is subject ID being recorded? <input type="checkbox"/> Is RT being recorded? 	<input type="checkbox"/>
For the demographic survey , how are you showing these questions? Are there multiple answers people can pick or is it a binary choice? Are people able to select multiple answers when they should not be?	<input type="checkbox"/>
For the demographic survey , what questions are being shown on the same screen? What questions should be on different screens?	<input type="checkbox"/>
For the demographic survey , how are the data being recorded and is it being recorded? Also, do you have all the questions you need?	<input type="checkbox"/>
Before Pre-Registration: <ul style="list-style-type: none"> <input type="checkbox"/> Are you providing accuracy feedback on priming practice trials? <input type="checkbox"/> Have you addressed ALL the feedback from Milestone 4? <ul style="list-style-type: none"> <input type="checkbox"/> Feedback 1 <input type="checkbox"/> Feedback 2 <input type="checkbox"/> Feedback 3 <input type="checkbox"/> Are you recording IP addresses? <input type="checkbox"/> Are you commenting the condition definition inside cognition.run <input type="checkbox"/> Have you piloted your experiment with Uma + other group + 5 friends) <input type="checkbox"/> Have they completed the pilot feedback sheet? <input type="checkbox"/> Have you sent the cognition.run link by Nov 10? <input type="checkbox"/> Have you finalized the analysis plan + sample size? <input type="checkbox"/> Have you created and submitted a pre-registration draft? 	<input type="checkbox"/>
Analysis <ul style="list-style-type: none"> <input type="checkbox"/> Did you confirm/correct all datatypes? <input type="checkbox"/> Did you figure out how to "filter" certain types of trials? <input type="checkbox"/> Did you fix all typos in attention responses? <input type="checkbox"/> Have you computed mean attention accuracy? <input type="checkbox"/> Have you applied exclusions based on accuracy AND RTs? <input type="checkbox"/> Have you created an RT bar graph? <input type="checkbox"/> Have you fit a statistical model? 	<input type="checkbox"/>

pre-registration + project checklist

- milestone #5:

pre-registration + project checklist (Nov 10)

1. **Data Collection:** Have any data been collected for this study already?
2. **Main Question:** What is the main question being asked or hypothesis being tested in this study?
3. **Dependent Variable(s):** Describe the key dependent variable(s) specifying how they will be measured.
4. **Condition(s):** How many and which conditions will participants be assigned to? Please include an example trial of each type of condition you have in your experiment. Please also specify which independent variable will be within-participants or between-participants.
5. **Analyses:** Specify exactly which analyses you will conduct to examine the main question/hypothesis.
6. **Outliers & Exclusions:** Describe exactly how outliers will be defined and handled, and your precise rule(s) for excluding observations.
7. **Predicted Plot:** Please submit a predicted plot for your study based on what you expect the pattern to look like for your main hypothesis.
8. **Sample Size:** How many observations will be collected or what will determine sample size? No need to justify the decision, but be precise about exactly how the number will be determined.
9. **Exploratory details:** Anything else you would like to pre-register? (e.g., secondary analyses, variables collected for exploratory purposes, unusual analyses planned?)

adding accuracy feedback to practice

```
var practice_feedback = {
  type: jsPsychHtmlKeyboardResponse,
  stimulus: function(){
    var rt = jsPsych.data.get().last(1).values()[0].rt;
    var correct = jsPsych.data.get().last(1).values()[0].correct;
    if(rt > 800 & correct == false){
      return "<b>Incorrect and too slow</b>! <br><br> Please try to respond faster.";
    } else if(rt < 800 & correct == false){
      return "<b>Incorrect</b>! <br><br> Please try to respond faster.";
    } else if(rt > 800 & correct == true){
      return "<b>Too slow</b>! <br><br> Please try to respond faster.";
    } else {
      return "<b>Correct</b>!";
    }
  },
  choices: "NO_KEYS",
  trial_duration: 1000,
  data: {
    typeoftrial: 'feedback'
  }
}
```

[code copy](#)

```
var practice_proc = {
  timeline: [fixation, image, prime_word, target_word, practice_feedback],
  timeline_variables: practice_stimuli,
  randomize_order: true
};
```

project work

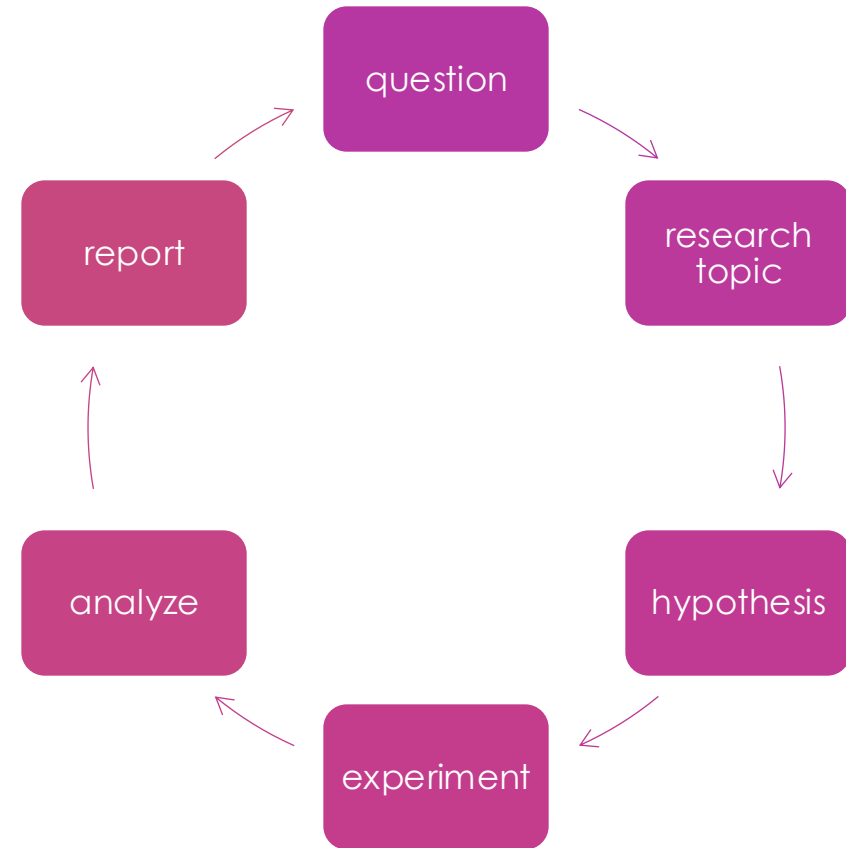
- work on your checklist!

analyses checklist

- confirm/correct all datatypes
- figure out how to “filter” certain types of trials
- fix all typos in attention responses
- compute mean attention accuracy
- apply exclusions based on accuracy AND RTs
- create RT bar graph
- fit a statistical model
- report statistics

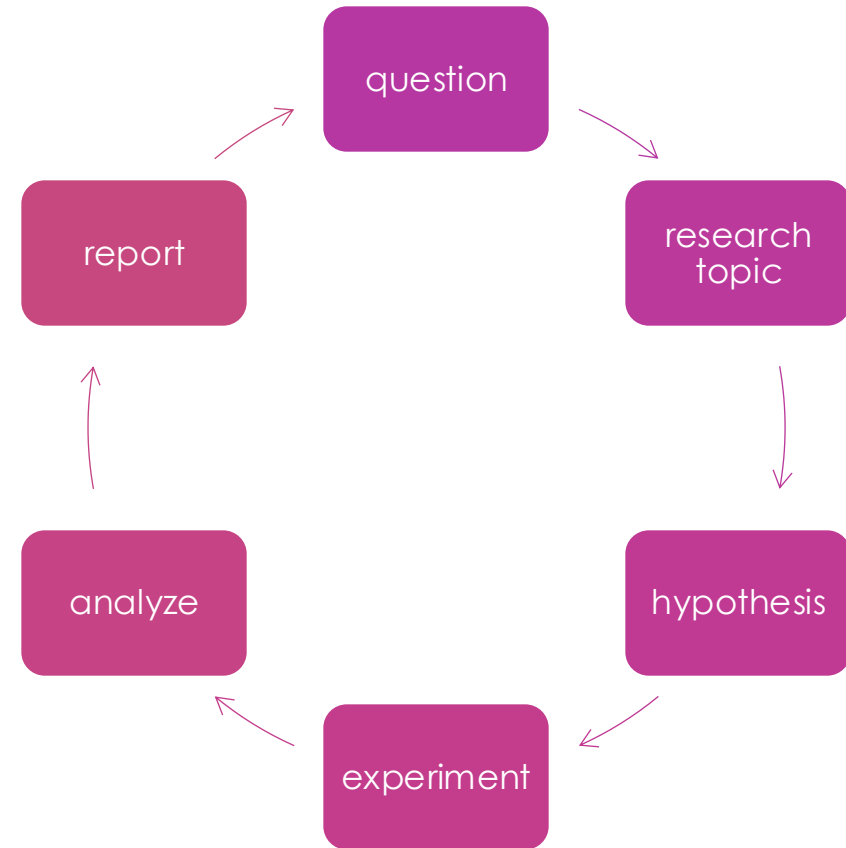
making inferences from data

- the research cycle employs *the scientific method* to answer questions



logic of null hypothesis statistical testing

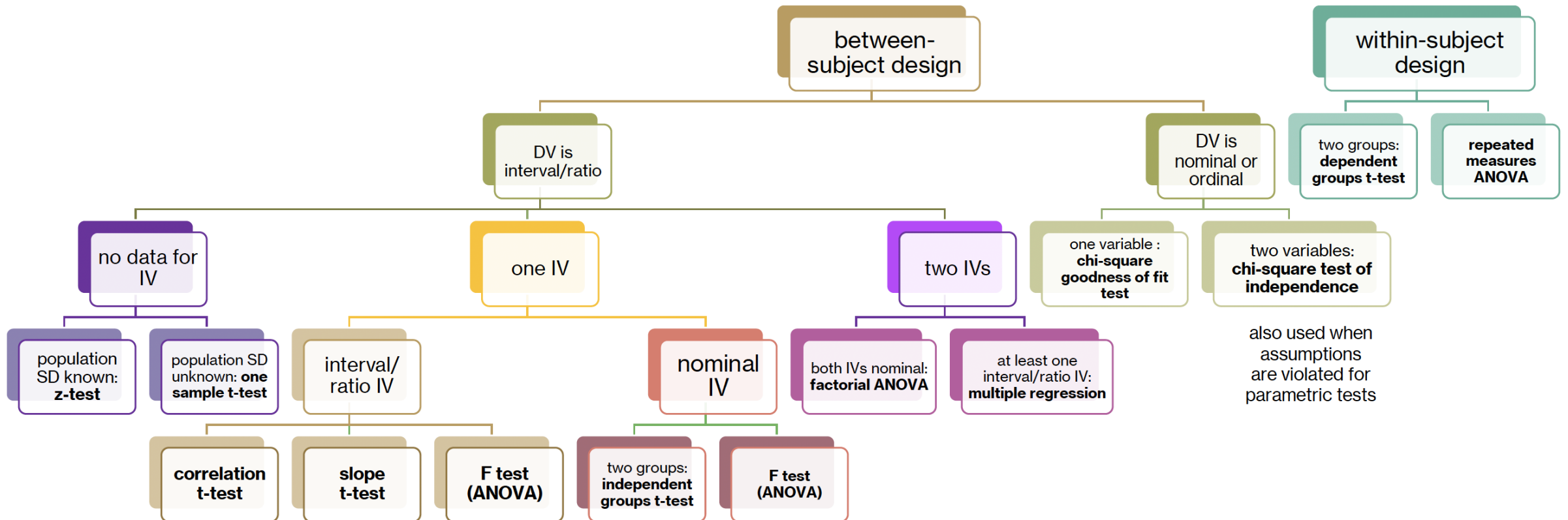
- formulate a **hypothesis**
- specify **null** and **alternative** hypotheses
- collect **data** relevant to the hypothesis
- **fit a model to the data** that represents the alternative hypothesis and compute a test statistic
- compute the probability of the observed value of that statistic **assuming that the null hypothesis is true**
- assess the “statistical significance” of the result



your data + hypotheses

- what are your independent and dependent variable(s)?
- what are your hypotheses?
- is your design within or between subjects?
- what statistical test is appropriate?

hypothesis testing



data collection basics

- two pools: Sona (PSYC 1101) and Prolific (online)
- one person per group will lead each pool
- decide now!
 - Sona person will get a researcher account from Donna Trout
 - Prolific person will create their own account

next class

- **before** class
 - *work on*: formative assignment #2 (R descriptive)
 - *work on*: project checklist + pre-registration
- **during** class
 - making statistical inferences from data!
 - t-tests, ANOVAs, linear mixed effects models