Research Report - Lab 1

Assignment details

Research Reports are designed to help you develop your skills in multiple areas that are essential for psychological research. **Written communication** elements require that you describe your research clearly and completely. **Analysis and coding** elements require that you turn raw data into a research finding. **Interpretation** elements require that you explain how your research study answers a cognitive psychology question.

While we expect that research groups will collaborate closely in the development of their Research Reports, each student is responsible for their own submission. You should be able to explain or justify everything in your report, even if you got help developing it.

Report Content

Research Reports should generally be drafted like an APA style paper, with an Abstract, Introduction, Methods, Results, Discussion, and references. They should be accompanied by an R Markdown notebook containing your data analyses. **For Lab 1, you will write only the Methods and Results sections, to familiarize you with the tools and process.** For all other research reports, you will create all five sections.

Methods

The Methods section of a Research Report should have at least 2 subsections:

Participants (or **Subjects**) describes the sample that was studied. How many people? How were they recruited? Note any exclusion criteria or special arrangements.

Stimuli describes the stimuli in as much detail as a reader would need to reproduce your experiment. How did you create or select them? Why did you make those choices?

Task should explain the core cognitive judgment or decision that participants made. Most cognitive psychology experiments center around one or more tasks. This section should also describe how any task-derived dependent variables are measured. The Task section is often grouped with the Stimuli and/or the Procedures into a single subsection.

Procedures should give a step-by-step narrative of what a participant experienced in your study. What other measurements or questionnaires did they complete? How many trials of your task, and how were they organized? How long did the experiment take?

Results

Results sections are generally organized into a paragraph for each dependent measure or research question. Within those paragraphs, start by summarizing the data using descriptive statistics: a central tendency and a spread. It is often most informative to give these summaries for each condition. Then, use one or more inferential statistical tests to ascertain whether the effects in your dataset are likely to be true of the broader population. Describe your conclusion in "plain English" and justify it with an APA-style statistical test report.

The Results section should have one or more figures showing the data, so that a reader can see the effects that are described in the text.

Analyses and Code

Using executable code blocks in an R Markdown document, load, process, and analyze your raw data.

We encourage you to use the notebook to explain what each code block does in "plain English", and comment on the output. It may be helpful to follow the QALMRI format to organize and document your thinking. Give your research **Question**, explain the possible **Alternative Answers**, and how you will **Logically** infer which answer is correct. A few bullet points about the **Methods** will help you remember the details. Your code blocks should produce the raw output of your **Results**, and you can make notes about **Interpretation** alongside.

Follow good practices for variable names and comments. Your code should be correct. That is, you should be using the correct functions for your desired goal, and **your code should run**. All of your report's results should be directly drawn from this document.

Format and style

Style notes and recommendations

Strive for clarity over formality. Your first goal as an author is to be understood by the reader. Appearing clever or well-read needs to be secondary. Be specic and concrete; avoid vague statements, undefined or unclear ideas or theories, and generalizations. Be cautious with sweeping generalizations and all-inclusive language.

It is best to use the active first person ("I" or "we") rather than passive voice whenever possible, although occasional passive voice is acceptable. It is almost never appropriate to use the second person ("you").

You should almost never use direct quotes in scientific writing; paraphrase and summarize (and cite).

The paper should be long enough to properly develop and communicate your ideas. Including the title page and references, a complete report will probably be 8-12 double-spaced pages. There is not a firm requirement, but if your paper's length is dramatically outside this range you may wish to consult your professor or TA for advice.

APA style

The article should be formatted in APA style, with a title page, running head, section and subsection headers, and in-text citations and reference sections all complying with the style guidelines. See https://owl.purdue.edu/owl/research_and_citation/apa_style/apa_style_introduction.html for an excellent overview of the APA style rules.

Figures

Communication and readability are the ultimate criteria for successful figures. Figures should be numbered (Figure 1, Figure 2, etc) based on the order in which they are mentioned in the text. Elements of the figure should be directly labeled (such as axes) or explained in a legend.

File Formats

You should upload three files to Canvas. **(1) Your written report**, in .doc, .docx, .rtf, or .pdf file format. **(2) Your .Rmd R Markdown analysis** file. **(3) Your compiled R Markdown analysis** in .html or .pdf format (for ease of grading).

Collaboration

You may discuss your paper with anyone you like. It is appropriate for members of a research group to collaborate to collect references, run data analyses, generate figures, and discuss their interpretations of their data. However, each student is responsible for their own understanding of the material they submit, and each student must write their own paper using their own words. That is, don't blindly copy code from

someone else, but make sure you understand how each line of it works. If you have questions about the boundaries of appropriate collaboration, ask the professor or TA.

Evaluation

Research Reports are generally graded 💎 Excellent / ✅ Successful / ✏️ Revise / 🚫 Missing, but for Lab 1, we will not include the Abstract, Introduction, or Discussion, and the 💎 Excellent mark will not be available. The following criterial will help to assign a grade (specifics are given in the rubric).

A report earning ✅ Successful will:

- include all of the content described above; all content expectations are met with B-level work or better.
- be generally well-written and clear.
- have minimal spelling/grammar/mechanics and APA style errors.
- meet the Format requirements.

Any of the following will earn 🚫 Missing:

- the submission is late without taking an excused extension (see the syllabus).
- the submission is not in the specified file formats.
- the submission does not appear to contain a good-faith attempt to complete the assignment.

Assignments that earn 🚫 Missing will be returned without constructive feedback.

Revision

Reports that fail to earn Successful may be revised and resubmitted at any time before the deadline on the syllabus. Revised reports may take two weeks or longer to be assessed and returned.

Course goals assessed

- Use appropriate statistical tools to explain and reason about quantitative data.
- Write accurately, efficiently, and clearly about psychological research.
- Work collaboratively in teams to formulate and solve research problems.
- Use modern digital information and communication tools to to find, evaluate, generate, and communicate information.