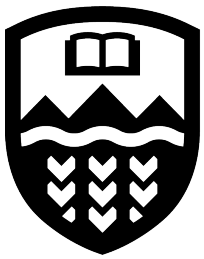


UNIVERSITY OF ALBERTA

PSYCH 213 - Fall 2025

Course Project II:

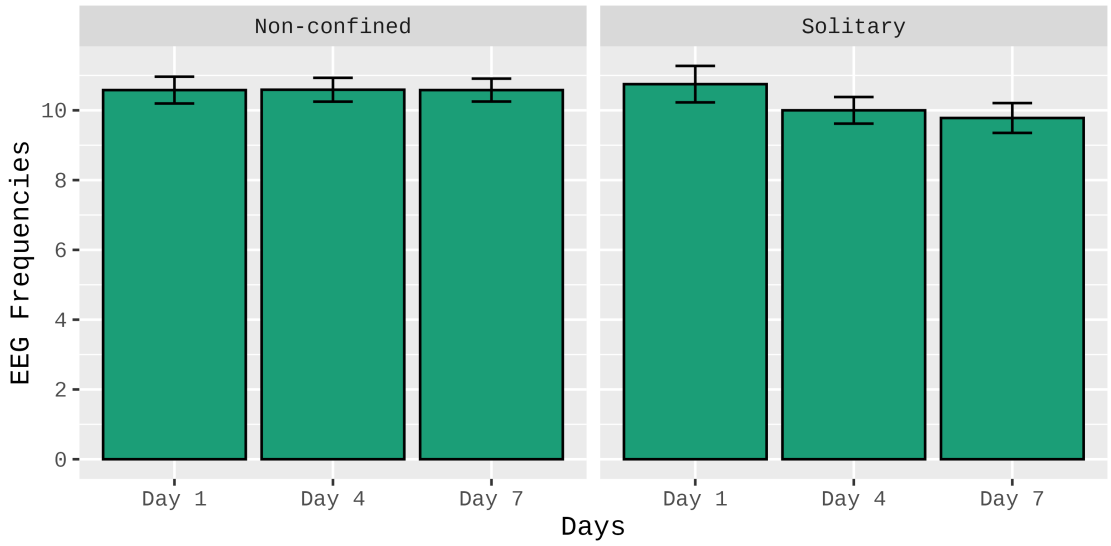
Visualizing Reported Data from Gendreau et al. (1972) Using R

Instructor: **Dr. Jeffrey M. Pisklak**

Objective

Create a Google Colab notebook that performs the following two tasks:

1. **Reproduce the bar graph shown below exactly.**



   Your notebook must generate an identical graph when run. Specifically:

   - The graph displays the means and 95% confidence intervals from the data file `gendreau_et_al_1972.csv`.
     - *Tip*: The data file is in a wide format. Your work will be much easier if you first convert it to a tidy (long) format. The function `pivot_longer()` is particularly useful for this, but there are other methods as well.
     - *Tip*: The plot uses `facet_wrap()` to separate out the groups.
   - The confidence intervals should be the same type used when you learned about one-sample *t*-tests.
   - Use the fill colour `#1B9E77`.
   - The figure dimensions must be 16 cm $\times$ 8 cm.
   - Save the plot as a high-resolution PNG file (at least 300 dpi).

2. **Display a data frame of the summary statistics used in the graph.**

   Your notebook must generate and display a data frame containing the means and 95% confidence intervals shown in the bar graph. The structure of your data frame should resemble the example table below, and the numeric values should match (rounding differences are acceptable).

Table 1: An example of the data frame your code should display

group	days	n	m	se	ci_low	ci_top
Non-confined	day_1	10	10.58	0.170	10.196	10.964
Non-confined	day_4	10	10.59	0.151	10.249	10.931
Non-confined	day_7	10	10.58	0.145	10.252	10.908
Solitary	day_1	10	10.75	0.231	10.227	11.273
Solitary	day_4	10	10.00	0.169	9.618	10.382
Solitary	day_7	10	9.78	0.189	9.352	10.208

Rules and Requirements

- Do **not** edit the data file `gendreau_et_al_1972.csv`. Any modifications must be performed in your R code *after* loading the file.
- The data frame must be calculated directly from the data file. Manually entering numbers into your code is not allowed.
- When your notebook is run, it must execute **without any errors**. If any errors occur, the entire assignment receives a score of zero.
  - Test your notebook by selecting *Runtime* > *Restart session and run all*.
- The only R package you may use is the `tidyverse`.

Submission Instructions

Submit the following file:

- A copy of your notebook (`.IPYNB`) file.

Due Date

This is due Sunday November 30th by 23:59.

About the Data

The data set `gendreau_et_al_1972.csv` contains the results of a study that examined the EEG frequencies of 20 prison inmates participating in a study at the notorious Kingston Penitentiary in Ontario. Half were randomly assigned to a “Solitary” group that placed them in solitary confinement, and the other half were assigned to a “Non-confined” control group. Measurements were taken a 1, 4, and 7 days.

Gendreau, P., Freedman, N. L., Wilde, G. J., & Scott, G. D. (1972). Changes in EEG alpha frequency and evoked response latency during solitary confinement. *Journal of abnormal psychology*, *79*(1), 54–59. https://doi.org/10.1037/h0032339