

# Prospectus

## Learning Objective

- Apply Bayesian analysis in a research project

## Assignment Description

In this class, you will complete a research project related to Bayesian analysis, typically a report analyzing real data or a theoretical/methodological analysis of certain aspects of Bayesian data analysis. For empirical analyses, the focuses are (a) formulating and justifying prior distributions from a review of previous literature, (b) obtaining and interpreting posterior distributions, and (c) comprehensive reporting of methods and results. Students can also replicate the analyses of an existing study, as long as the chosen study shared sufficient data and materials and did not use a Bayesian analysis with informative priors. Students interested in project ideas other than an empirical research report (e.g., software package development, systematic review/meta-analysis) are encouraged to discuss their ideas with the instructor. Each student can choose to work on their own or in a group of up to three (3) people.

A prospectus about your project should be submitted by **Monday, March 21**. The prospectus should contain a concise description of what you (or your group) plan to do for your project, including a preliminary plan for statistical analysis. **The prospectus should be limited to 1 single-spaced page (excluding tables, figures, references, and other supplemental materials).**

In addition, you will need to create a GitHub repository for your project so that you can share your analytic scripts (see resources below). You can also upload data files (if it's sharable and without identifiable information) and any supplemental materials, but these are optional. Your prospectus should include a link to the GitHub repository you created for your project.

## GitHub Resources

- Creating an account: <https://happygitwithr.com/github-acct.html>
- Creating a repository from GitHub: <https://docs.github.com/en/get-started/quickstart/create-a-repo>
- (Optional) connecting RStudio with GitHub: <https://psyc575-2021fall.netlify.app/week8.html#using-github>

## Steps

1. You can use R Markdown or other word processing software for writing your prospectus.
2. Write down your name(s)
3. Indicate whether you/your group will do a paper or an oral presentation. Only one paper/presentation is required for each group.
4. Include the following in the prospectus

- a. A brief description of your research question(s) and relevant background
  - b. A description of your data (or data source)
  - c. Quantitative results from one prior study relevant to your research question (e.g., mean difference and standard errors; regression coefficients and confidence intervals)
  - d. A description of the statistical models you will use (it will be revised after discussion with the instructor)
  - e. Additional information that would facilitate discussions (e.g., data plots, flow chart of experimental designs, etc)
5. Create a GitHub repository for your project (see resources above).
  6. At the end of your prospectus (before references and any supplemental materials), include the following statement:

The data analytic scripts and supplemental materials for this project will be available at  
[insert the link to your repository]
  7. Submit your prospectus (in PDF/WORD) to Blackboard.

## Grading

- Format (0.5 points)
- Research question & background (2 points)
- Data description & quantitative results from a previous study (1 point)
- Statistical model (0.5 points)
- Link to GitHub repository (0.5 points)
- Meeting with the instructor to discuss prospectus (0.5 points; to be announced)

## Additional Notes

You may post your questions to the Slack channel to get help from your peers and instructor.