Rubric for Lab 4 & Final Paper

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For the final paper, I expect you to write up an analysis of a multilevel analysis. This paper should basically combine a very brief introduction (2 pages MAX) plus fleshed out methods, results, and conclusions sections of a journal-quality paper.

Include your data management and data analysis syntax as an appendix. This should cover things like recentering, transformations, scale constructions, and data reshaping. The syntax should be clean, organized, and with comments indicating what you are doing.

While the lab assignments are meant to help you prepare this final paper, I can’t check everything. If a glaring error escapes my attention in a lab assignment, but I catch it here, I will dock your grade. You are ultimately responsible for the quality of your analyses.

To assist in my grading, please answer these questions in order with section headers letting me know which element you are addressing.

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| Points | Element |
| 5 | **Introduction.** You will clearly and succinctly lays out what you are going to do and why you are doing it. |
| 10 | **Data source.** You will describe your data source and make clear **where**, **when** and **how** your cases were selected. To what extent were they randomly sampled? |
|  | Make clear what “level 1” and “level 2” are but only use those at once most! |
|  | How was data collected from individuals (e.g. online survey, phone interview, in-person diagnostic assessment)? |
|  | If you are using an experiment, what were the procedures used for the treatment/control conditions, and how were subjects assigned to those different conditions? |
|  | If you are using longitudinal data you will be clear about the timing of follow-ups. |
|  | Do not get around answering these questions by citing some other article. |
| 5 | **Dropped Cases.** How many level-1 and level-2 cases do you have before you drop cases due to scope conditions? How many level-1 and level-2 cases do you have after you drop cases due to scope conditions? How many level-1 and level-2 cases do you have after you drop cases due to missingness (i.e. subject noncompliance)? |
|  | If you are using an observational study with multiple follow-ups, how bad was attrition? Are your key predictors related to dropping out of the study? What would be the ideal number of level-1 cases if everyone did every follow-up, and what is the actual number of level-1 cases? Did you drop entire cases because of incomplete observations (not recommended)? |
| 5 | **Variables.** You will describe each of your variables. |
|  | Make clear the role they play in your analysis (outcome, focal predictor, control variable, mediator, moderator, etc.) and what level they vary (level-1 or level-2). |
|  | Briefly describe how they were measured. |
|  | Their valence and unit of measurement should be clear. |
|  | Are you using any standardizations or transformations? |
|  | For Level-1 predictors, outline your centering and aggregation strategy. |
|  | What is the meaning of your Level-1 predictors—are they getting at within-group (or within-person) associations? Or do they represent a mixture of within- and between group (person) effects? |
| 5 | **Summary Statistics.** Create a professional table of summary statistics (not R output), giving the mean and standard deviation of variables. |
|  | The outcome(s) should be listed first, followed by the level-1 predictors, followed by the level-2 predictors. |
|  | ALL variables should be presented the way they are entered into your regression models–if you standardize/transform/center a variable, you should present summary statistics on the standardized/transformed variable (it is optional to present summary statistics on the raw values). |
|  | Means and standard deviations should be calculated across observations for the outcome and observation-level predictors; means and standard deviations should be calculated across subjects for the person-level predictors. These should be estimated from a dataframe AFTER you do listwise deletion (if you work with multiple samples for different outcomes, just choose one sample). |
|  | No cryptic variable names. |
|  | Variable names should clearly indicate the valence of the variable, and no dummy variable names like “gender” or “race”. |
|  | Acronyms should be explained in a note. |
|  | Do not just copy and paste tables directly from a statistical package in your paper. |
|  | The unit of measurement & valence should be clear, especially if the variable lacks a concrete metric or if it is z-standardized (with a “z” or “SD”). |
|  | Everything should be clearly labeled and titled. |
| 5 | **Analysis & Estimation Technique.** What kind of model are you running? A linear model? A generalized linear model (logistic regression, count model, etc)? Give a brief explanation for the necessity of multilevel modeling. It can simply be: you are using clustered data, with which traditional regression techniques give us downwardly-biased standard errors (leading to greater chances of Type I error) and less efficient estimates of coefficients. What predictors will have random slopes (if any), and why? |
|  | Explicitly state if you are using restricted maximum likelihood (the default; your deviance tests will only refer to variance components) or full maximum likelihood (your deviance tests will refer to variance components plus slopes, but at the cost of getting relatively poorer estimates of the variance components). If you have two observations per macro-unit please use full ML. |
| 10 | **Results table.** |
|  | Your predictors should be grouped by their level, and these levels should be labeled. |
|  | Make sure you indicate *z*-standardization / transformations (including for the outcome). |
|  | Make sure the valence of all variables are clear. |
|  | If you decide to omit control variables from your table, you should add a note listing them. |
|  | I should be able to read your table by itself and interpret all main effects and interaction effects (if any) without consulting your text. |
|  | Your presentation should be compact–you should give me the slope and standard errors and stars (do not present the standard error AND the *t*-statistic!). |
| 35 | **Write-Up**. Your write-up should speak to **your** substantive concerns. This would be what you would put in a journal article. Your write-up will be graded based on accuracy, clarity, and succinctness. |
| 5 | **Graph**. Create any graphs as needed (you may not need them; in that case, no graph is necessary). Graphs should have clear titles and labels. I should be able to read your any graphs by themselves and know what’s going on without consulting your text. You should present at least one graph if one or more of the following conditions are met: |
|  | • Your results hang on a significant interaction |
|  | • Your results hang on a significant nonlinear effect |
|  | • You are using a generalized linear model |
| 5 | **Discussion / Conclusion.** our discussion/conclusion will link your results to your introduction—what are your answers to your research questions, and what are the larger implications? If you have potential problems with causality, measurement, internal validity, or external validity you will acknowledge them. |
| 10 | **Apendix**. Your R syntax that is organized and clearly labeled. There is a logical progression from reading in data, cleaning it, creating variables, and running analyses. |
| 0 - -20 | **Obscure Writing.** Your paper should be written for an audience that is not necessarily familiar with multilevel modeling. Do not assume your reader took this class (so minimize the “level-1” and “level-2” lingo!). |
|  | Also do not assume your reader is a psychology PhD; indeed he is not! I need to understand what you are saying. Do not take for granted I understand what you are talking about. |
| 0 - -100 | **Glaring Errors**. There will be no glaring errors that indicate sloppiness or send a signal that you do not know what you are doing (e.g. misinterpreting coefficients). There will be consistency among all elements of the assignment. |

**Upload your assignment to Canvas. Check your submission to make sure there are no issues with formatting. If there are email the assignment to me (**[**klugman@temple.edu**](mailto:klugman@temple.edu)**).**