

## CTIN 510 Special Topics in Research Methods

### Guidance for the write-up of your research project.

6-April-2020

#### Logistics

1. The paper will be worth 25 points or 25% of your grade
2. There is a place on blackboard for you to upload the paper
3. The paper should be uploaded in MS Word or some compatible format. In other words, I want to be able to make comments in the document and not simply as inserted comments (**don't upload a PDF**).
4. Please upload your final version by end of day Tuesday 21-April.  
I will have posted the initial review by 26-April (at the latest)  
On Monday and Tuesday (April 27, 28). I will schedule a meeting with each of you individually to review my comments. Revisions are due by NOON, Monday 4-May.

#### Other guidance

This paper is **not** a post mortem. That means you don't describe your activities in a step-by-step way. Instead it should be like a mini-research paper, as if you were submitting it for publication.

Do not use colloquialisms, e.g. "this data pushed us over the top", instead "the results supported the hypothesis that planarians can learn".

1. The paper should have the following sections
  - 1.1. **Abstract:** 50 to 100 words that describes your study briefly. It outlines your work. You are not trying to convince them to read the paper. Instead you are giving them just enough information so they can decide. These short abstracts are hard to write. You can let the title or your paper do some of the work. Some people write the paper first and the abstract last.
  - 1.2. **Introduction:** use this section to "set up" your study. What hypothesis are you testing, or what question are you trying to answer? Why should the reader care about this question? Here you can cite any prior work that is relevant to your question. This section should be approximately 500 words (1 page).
  - 1.3. **Methods:** what did you do to answer this question or test the hypothesis? Another way to state this is: "what should the reader do if they wanted to replicate your study?" Particular scales or surveys that you used should be referred to here, but not reproduced. If it's a scale or a survey you created you can put it in an appendix and refer to it here. If it is a scale that you found in the literature, you should cite the source here. In a sense this section connects the concepts that

you introduced in the introduction with the operational definitions and experimental procedures that you employed in the study. This section should also be about 500 words (1-page). Figures here can be helpful if they show the logic of the study or indicate steps in the procedure (figures don't count against page length).

- 1.4. **Results:** what you found. Always start with a description of each result. This can include figures or tables. The text should restate what is in the table or figure. If you use a figure be sure to label both axes. If you use a table clearly label the columns and rows.

*After* showing the data, then you can report a significance test (t-test, correlation, F-test, CHI Square, or some other test). A way to think about this is first you tell the reader what you found and then tell him/her if it is significant. Do this for each of your dependent variables. In other words, discuss one variable before you discuss the next one.

If you did a qualitative study discuss each conclusion then then illustrate the conclusion with examples from the data you collected (e.g. direct quotes, ect.).

For those of you who did RITE studies you should present your results in a table that is taken from your spreadsheet.

Overall this section will vary in length about a 1000 words max, or 2 pages not including figures and tables.

- 1.5. **Discussion:** what did you learn? This section "unites" that Introduction and the Results sections. It states each hypothesis that was confirmed or disconfirmed and/or each question that was answered and what the answers were.

If the data was unexpected in some way, discuss that here. How is it different and why do you think it is different? Is the explanation for this difference that your expectations were incorrect, or is that something about your method led to this result. Draw out any further implications of your results. So use a dumb example, if you found that people were less intimidated by green bosses. Then you would recommend that designers not make bosses green, if they want them to be intimidating. You would also discuss the implications of this finding, what color should bosses be if you want players to be intimidated by them. This section should be about 1500 words or 3 pages. It is acceptable if it is shorter but try to trim it if it is longer.

- 1.6. **Summary and conclusion:** like the introduction it should be brief. But it can be a little longer, 200-250 words are about right. It should restate what you learned and any future work that follows from your study.

- 1.7. **References** if you have them. No specific formatting standards here, just put in enough information so that the reader can find the article. Also be consistent in how you reference things. If you have a favorite style, use that. I won't be nitpicking the format for references. This does not count with respect to the length of the paper.

- 1.8. **Appendices** if you have them they go here. Each appendix should have a title. Examples of appendices are copies of questionnaires or interview protocols. Like references, appendices don't count in the length of your paper and have no length limits. The audience for these is someone who wants to replicate or improve on your study.

2. You can think of each of these sections as answering questions for the reader
  - 2.1. **Abstract:** is this study related to my interests? if yes; proceed to Introduction or Summary and Conclusion.
  - 2.2. **Introduction:** what were the authors questions and why did he/she ask them, why should the reader be interested – if it's interesting the proceed to Method or Results
  - 2.3. **Methods** some people will skip this section entirely or only come back to it after the results or discussion. One reason for skipping this that if they don't plan to run a similar study why should they care about how it was done? Some people may come back after reading the results, particularly if the results are not what they expected. These people are asking the question – why did these results occur? Also you might skip this if you are an expert in this field and assume that this is like other studies you have read.
  - 2.4. **Results:** what you (the author) find? The reader will try to match this section to the hypotheses or questions raised in the Introduction. If this is difficult for them, you are not writing clearly enough. (Your job is to communicate to the reader. If they don't understand, it's your problem. This is the hardest part of writing and many writers don't work hard enough at it. As a result many papers published papers are poorly written).
  - 2.5. **Discussion:** assume the reader understood the Introduction and the Results. Here is where they learn what it means and why it was important. They also find explanations of findings that were surprising or strange.
  - 2.6. **Summary and conclusions.** Don't introduce new ideas here, unless they are implications for future work
3. The length or your paper may be variable. I would say between five and ten pages, not counting appendices and references. We worked hard to simply most of the studies so they should not take a lot of pages to write up. A page should take up about 500-600 words. Figures and tables don't count toward these suggested page lengths. Neither do appendices and references if you have them.
4. Keep your language formal. **Do not** use colloquial expressions. Do not refer to yourself. For the most part stick to the passive voice or refer to objects. For example the "the results showed blah, blah", NOT "I found that this and that". This way of writing can seem stilted and formal. It is. That's because it's supposed to be stilted and formal. The philosophy behind writing up studies is that authors are interchangeable. If someone else did what you did they would find the same thing.
5. Generally, avoid rhetorical flourishes. Even if it's an important question and you found stunning results, discuss them in a dispassionate way.
6. Don't use obscenities, e.g. "I finally got my sh\*t together". (Yes, I have read this in papers). Instead say "developing the methodology was challenging". Follow that statement with a single line of what was the challenge and how it was solved.
7. Keep your sentences short. Studies are hard to read. Embedded conditional clauses make them harder.
8. Fewer words are generally better.
9. Simpler words are usually better. But don't use a simple word when you need a precise meaning.

10. Don't misuse precise words. For example don't say *there was a correlation between X and Y* unless you actually computed a correlation coefficient. If you did not compute a correlation coefficient but you found that Y increased as X increased say *there was a linear relationship* between X and Y.
11. Have someone else read over your paper. Ask them to look for confusing parts of the paper and note those. You may or may not need to fix these problems, but they are cues to where you need to think about how to phrase what you have written. This is a subtle point. I don't expect to be able to read papers in highly technical fields unless I have studied the field in depth. In this case most intelligent people should be able to read and understand your study.
12. Run a spell check.
13. Once the paper is written check to see if you have repeated the same word over and over. If so look for synonyms. This is a bit of a nit, but following this procedure contributes to the polished feeling of the paper.