《多元统计分析》大作业说明

1. **题目，任选下面之一：**
   1) 网络学堂提供的备选数据集之一
   2) 自选数据集
2. **Report 要求：**
   请将"1)主报告+2)补充材料+3)数据(if applicable)"打包上交：

1) A 10-page (or shorter) paper reporting the results of your project that includes the following:
   · he research question(s)
   · ackground/significance of the research
   · he methods used to obtain and analyze the data
   · he results of the analysis (tables, charts, graphs, significance, confidence intervals, descriptive text)
   · discussion of the research, the limitations of the current research, reasonableness of any assumptions made, possibilities of future work/studies that should be conducted, etc.
   · n addition to the 10-page paper, you may have (in the same file) a blinded title page which includes: The title of the project and a one-paragraph abstract of the project (recommended length of no more than 150 words).
   · eferences (if applicable) should be listed at the end of the paper and do not count against the 10 page limit.
   · anguage: Chinese or English

   Example Submission: You might submit a 9.5 page PDF document that consists of the title page, 8 pages of text/graphs, and a half page of references.

2) Supplementary
   补充材料(代码及辅助图表、公式等；评估时只考察 code 正确性，其余补充内容不参与评估)
   Please include up to 5 additional pages of information about your project in an appendix (as part of the single uploaded file). This should include all your codes, data resource if you use data other than what we provide. This supplementary could also include secondary analysis results, charts/tables, etc. No information deemed critical to the evaluation of your project should be included in the Appendix.

3) Data: 若自选数据集，请提交数据
   ．若涉及保密数据不便提交，请在 2)中予以说明.

3. **打分方式(先按满分 100 计算，再根据比例折合入总评)：**
   按如下比例加权平均, 得到大作业的总分数
   ✧ 100 points for Description of the data (data source)

- ✧ 100 points for Research Design (and Data Collection if applicable)
- ✧ 100 points for Accuracy of Data Analysis
- ✧ 100 points for Accuracy of Conclusions
- ✧ 100 points for Reflection on Process / Discussion
- ✧ 50 Points for Creativity / Originality
- ✧ 50 Points for Writing quality and organization of the paper (looks nice, cover page, etc.)

例如，某同学以上各项打分分别为(90,90,100,100,80,50,40),则总分为各项和/600=92.

Report Template

While there are no specific structural limitations to the report, one possible structure is suggested below. Following the instructions below, your report would look like a peer-reviewed journal article. However, this is not required. The following standard is a bit higher than the requirement of our course. Just provide some information for your reference, if you need.

- · Title (on title page)
- · Abstract (on title page)
- · Background and Significance (part of 10 pages)
- · Methods (part of 10 pages)
- · Results (part of 10 pages)
- · Discussion/Conclusions (part of 10 pages)
- · References (not included in the 10 page limit)

1. Title
Give an informative title to your project.

Assessment: Does the title give an accurate preview of what the paper is about? Is it informative, specific and precise?

2. Abstract
The abstract provides a brief summary of the entire paper (background, methods, results and conclusions). The suggested length is no more than 150 words. This allows you approximately 1 sentence (and likely no more than two sentences) summarizing each of the following sections. Typically, abstracts are the last thing you write.

Assessment: Are the main points of the paper described clearly and succinctly?

3. Background and significance
In this section you are providing the background of the research area and arguing why it is interesting and significant. This section relies heavily on literature review (prior research done in this area and facts that argue why the

research is important). This whole section should provide the necessary background leading up to a presentation (in the last few sentences of this section) of the research hypotheses that you will be testing in your study. Well-accepted facts and/or referenced statements should serve as the majority of content of this section. Typically, the background and significance section starts very broad and moves towards the specific area/hypotheses you are testing.

Assessment:
Does the background and significance have a logical organization? Does it move from the general to the specific?
Has sufficient background been provided to understand the paper? How does this work relate to other work in the scientific literature?
Has a reasonable explanation been given for why the research was done? Why is the work important? Why is it relevant?
Does this section end with statements about the hypothesis/goals of the paper?

4. Methods

a. Data collection. Explain how the data was collected/experiment was conducted. Additionally, you should provide information on the individuals who participated to assess representativeness. Non-response rates and other relevant data collection details should be mentioned here if they are an issue. However, you should not discuss the impact of these issues here---save that for the limitations section.

b. Variable creation. Detail the variables in your analysis and how they are defined (if necessary). For example, if you created a combined (frequency times quantity) drinking variable you should describe how. If you are talking about gender no further explanation is really needed.

c. Analytic Methods. Explain the statistical procedures that will be used to analyze your data. E.g. Boxplots are used to illustrate differences in GPA across gender and class standing. Correlations are used to assess the impacts of gender and class standing on GPA.

Assessment:
Could the study be repeated based on the information given here? Is the material organized into logical categories (like the one's above)?

5. Results
Typically, results sections start with descriptive statistics, e.g. what percent of the sample is male/female, what is the mean GPA overall, in the different groups, etc. Figures can be nice to illustrate these differences! However, information presented must be relevant in helping to answer the research question(s) of

interest. Typically, inferential (i.e. hypothesis tests) statistics come next. Tables can often be helpful for results. Do not give computer output here! Tables and figures should be labeled, embedded in the text, and referenced appropriately. The results section typically makes for fairly dry reading. It does not explain the impact of findings, it merely highlights and reports statistical information.

Assessment:
Is the content appropriate for a results section? Is there a clear description of the results?
Are the results/data analyzed well? Given the data in each figure/table is the interpretation accurate and logical? Is the analysis of the data thorough (anything ignored?)
Are the figures/tables appropriate for the data being discussed? Are the figure legends and titles clear and concise?

6. Discussion/Conclusions

Restate your objective and draw connections between your analyses and objective. In other words, how did (or didn't) you answer/address your objective. Place these all in the larger scope of previous research on your topic (i.e. what you found from the literature review), that is, how do your findings help the field move forward? Talk about the limitations of your findings and possible areas for future research to better investigate your research question. End with a concluding sentence or two that summarizes your key findings and impact on the field.

Assessment:
Does the author clearly state whether the results answer the question (support or disprove the hypothesis)?
Were specific data cited from the results to support each interpretation? Does the author clearly articulate the basis for supporting or rejecting each hypothesis? Does the author adequately relate the results of the current work to previous research?

7. References

Assessment:
Are the references appropriate and of adequate quality? Are the references citied properly (both in the text and at the end of the paper)?