

Statistical Programming: Term Paper Instructions

Term Paper Information

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General Information

The examination for our course will be a term paper that you will complete alone or in groups of max. 4 students. Here's an overview of the expected term paper. Please read the information carefully and don't hesitate to ask questions if anything is unclear.

Term Paper

What to Submit

! Important

Please read the following instructions carefully.

Your final submission consists of

- a **Report** as a `.pdf` file that includes your analysis and the results
- all required source **code** files (including `.py`, `.ipynb`, may the source `.qmd` file and all other files) that are required for full replication.
- The COGNISANCE.docx file on AI tool usage, which you can download from the course website or Stine.

Submission will be possible **only** via **mail to jan.rabenseifner@uni-hamburg.de** or a shared GitHub Repository. Make sure to add me (<https://github.com/JanRabenseifner/>, jan.rabenseifner@uni-hamburg.de) as a collaborator to your (private) GitHub repository if you choose the GitHub submission option. Please make sure to submit all required files before the deadline. If you submit in a group, it is sufficient to send one submission. Please make

sure that you submit all files in a zip file if you choose the mail submission option. Sometimes, the mail server may not accept large files or scripts (.py, .ipynb) due to security restrictions. If you have problems with the submission, please contact me in time before the deadline.

Report

The report should be a standalone document that can be read and understood without the need to access the code or data. Code and code output can be part of the report, but please think carefully about what to include in the report and what to put in the appendices / additional code files. Align with the rule “*As long as necessary, as short as possible*”.

Recommended Tools (Report)

I recommend that you use Quarto to prepare the report, see Closing Lecture and <https://quarto.org/> for further information. Quarto helps you handle your text answers, Python code, figures, tables and references in a structured way.¹ For your analysis, you can use Python Scripts, Quarto Markdown Notebooks including Python Cells and Jupyter notebooks.

Tip

If it's your first time working with Quarto, I would recommend you to start with a short version of your paper. First, try to render the file to pdf without any code and then include the code step by step. Please have a look at <https://quarto.org/docs/output-formats/pdf-basics.html>.

Your code must run smoothly from the very first to the very last line, in order to successfully render the file. You may set the option `error: true` in the meta data at the top of your file (see <https://quarto.org/docs/computations/execution-options.html>), so quarto tolerates error and also outputs the error message in the rendered file. This can be helpful for debugging, but please make sure to set it back to `false` for your final submission (as otherwise your file may include errors).

Replicability and Code Submission

Your submission should be **fully replicable**, which means that all code and data files required to reproduce your analysis and results should be included in your submission. I recommend you to use relative paths (`data/data.csv` instead of `C:/jan/uni/statistical-programming/data/data.csv`) in your code to ensure that it can be run on different machines without modification.

¹Including code in .tex or word files works, too, but is rather complicated and prone to errors.

You may also prepare a `README` file that provides an overview on the code and repository structure and instructions on how to run the code. Please make sure that your code is well-documented and organized in a way that allows others to understand and replicate your analysis.

Please also list all dependencies, i.e., all Python libraries. You can use either `uv` and provide a `pyproject.toml` file or a `requirements.txt` file for this purpose, which can be generated with `pip freeze > requirements.txt` in your Python environment.

Language

You can write your term paper either in English or German. Please only use one language throughout your paper. I recommend that you use an appropriate formatting style for the term paper following standard academic guidelines.

Submission Deadline

The submission deadline for the term paper is **June 08, 2026, 23:59 (German time)**. Submission will only be accepted via mail (report and ZIP file with code) or via GitHub. Late submissions will not be accepted, unless you have a valid reason (e.g., illness) and have informed me in advance.

Use of AI Tools

You are allowed to use AI assistant for your data analysis. I expect you to use AI tools in a responsible and reasonable way. You should not use ChatGPT and the like to write your report (other than formulation suggestions or proofreading). If you use AI tools, please document this in a separate paragraph in your term paper. You should clearly state which tools you have used and for which parts of your submission. Please also include a brief reflection on the usefulness of the tools and potential limitations or risks. Please also fill out the provided DOCX file on AI tool usage and submit it together with your term paper (COGNISANCE.docx).