OCS 4001
Scientific Computing Fall 2024
Final research paper
Due Sunday 12/8 by midnight.

Assignment

The goal of this assignment is for you to practice writing up your research in the standard scientific format. Your report should be around 8-12 pages, including figures, formatted in LaTeX/Overleaf or Word. It should take the form of a scientific article with the following sections: Abstract, Introduction, Methods, Results, Discussion, Bibliography. Your bibliography should have about 3-10 references, cited using Zotero or other bibliography manager. At least 2-5 figures or tables are required, and you need to have made at least two figures using python. Provide a cleaned-up sample code in an appendix or supplement and be uploaded into github.

The target audience for this paper is your fellow students. Think of future students of this class reading your report for inspiration and guidance. Use clear, accusable language that is not too full of jargon.

Focus on briefly writing up your methods in narrative form, a clear presentation of your results, and discuss what these results mean. Your introduction should be succinct, and just enough to contextualize your study and set up your discussion, which should include conclusions. You might discuss coding pitfalls you encountered briefly. In general, practice using concise scientific language, minimizing the number of words needed to convey your meaning. Writing a shorter paper that is clear, to the point, and easy to read is much better than a longer, rambling one. Be kind to your reader.

Papers should be loaded into github and named final_report_yourname.pdf. Please do not turn in your work in any other format.

As per the syllabus, timely and satisfactory completion of this paper is required to pass the class.

Assignment Checklist

Name of Student:

1. Student name is included in the body of report and in the filename

2. Has appropriate abstract

3. Has introduction that is not too long and includes research objectives

4. Has 2-5 figures and/or tables
    a. At least two figures made by student in python
    b. Figures and tables are cited in the text and properly captioned

5. Methods are explained clearly and succinctly and related to research objectives

6. Results are explained clearly and succinctly with supporting figures/tables

7. Discussion
    a. Exists and makes sense
    b. Includes conclusions that relate to research objectives
    c. Discusses broader impacts briefly

8. Amount of coding work done is appropriate for the class and degree level

9. Writing is reasonably decent: complete sentences, no missing words

10. Has bibliography of 3-10 references cited appropriately in the text

11. Has cleaned up example analysis code uploaded in github and linked in report

Notes: