Case Study Instructions and Grading

Document your attempts to use chatGPT or some other large language model to develop functional code that addresses at least one research question about biological or environmental systems. Your case study about this coding application should be documented in files that you share publicly on Github, with more specific requirements detailed below. You will give a short presentation summarizing the case study (~5 minutes) at the end of the semester.

Prospectus - due Tues Mar 19 at 5pm
Develop an outline of your case study idea that includes the following (see example prospectus)…

1. An informative title
2. At least one explicitly stated research question that necessitates development of a coded procedure/analysis.
3. At least one objective stating what the code procedure is about and what the finished code will hopefully do.
4. A few statements about your intended approach/methods.
5. At least 2 references from peer reviewed scientific journals related to your case study idea and research question(s)

Case study files - due Fri May 3 at 5pm
Document and share the following case study files…

1. A written overview of your case study, between ½ page and 1 page single spaced, that builds on the content from your prospectus.
2. Code files that you used in the case study, such as .R files.
3. Any responses from ChatGPT or other large language model that you used in the case study, preferably saved as .txt files.
4. A minimum of 6 references from scientific journals related to your case study idea.
5. Slides for your case study presentation.
6. (Optional) Any other supporting info you feel is necessary to document the case study.

You may work individually or in pairs on this assignment.
Example case study files are found in https://github.com/st3powers/codegpt
Details from several other case study examples are found in the supplementary information from Merow et al (2023) and Shue et al (2023).

Grading

Prospectus file, 10%
Short presentation of prospectus (2-3 minutes including Q & A), 10 %
End of semester presentation (5 minutes plus Q & A), 30 %
Case study files **due 5pm on Friday May 3**, 50%

Selected References

Merow C, Serra-Diaz, JM, Enquist, BJ, & Wilson AM. 2023. AI chatbots can boost scientific coding. Nature Ecology & Evolution, 7(7), 960–962. https://doi.org/10.1038/s41559-023-02063-3

Perkel, JM. 2023. Six tips for better coding with ChatGPT. Nature, 618(7964), 422–423. https://doi.org/10.1038/d41586-023-01833-0

R Core Team. 2024. R: A Language and Environment for Statistical Computing. from https://www.r-project.org/

Shue E, Liu L, Li B, Feng Z, Li X, Hu G. 2023. Empowering beginners in bioinformatics with ChatGPT. Quant Biol 11:105–8. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10299548/