Pre-class assignment # 1

PHY-905-003, Computational Astrophysics and Astrostatistics
Spring 2026

This assignment is due by 11:59 p.m. on Monday, January 12, 2026.

Instructions: Read through the materials below and follow the instructions/answer the questions at the end. Turn in all written answers in some readily readable format – preferably a text file or MarkDown, but Word or PDF will do in a pinch. Please turn in your homework by committing to the Git repository you hopefully retrieved this assignment from! If that doesn't work, email it to me at oshea@msu.edu. In the future, we will exclusively use GitHub and a GitHub Classroom to hand out and turn in all assignments.

Reading assignment:

1. Class syllabus and tentative course calendar (PDFs; provided)
2. Git tutorial: `http://rogerdudler.github.io/git-guide/`
3. Chapter 1 and Section 2.7 of *Computational Physics*, by M. Newman
4. "Best Practices for Scientific Computing" by G. Wilson et al. (arXiv:1210.0530; PDF provided)
5. "Computing in Astronomy" slides by B.W. O'Shea (from a presentation given to first-year astrophysics PhD students in October 2025; PDF provided)

Questions/Instructions:

1. **Git tutorial:** Bookmark the Git tutorial. We will be using this quite a bit in the coming weeks!
2. **MatterMost:** You already have an account on the Physics & Astronomy MatterMost server, and have been added to the class MatterMost channel. Please say hello on that channel (or post an animated gif; just indicate you know how to use it)! We're going to be using MatterMost quite a bit for course discussion and announcement
3. **Markdown:** I will distribute many documents using the Markdown syntax. You may wish to install a Markdown editor. A good one for Macs is MacDown, and for Linux is ReText. If you are a Windows user I don't have any advice on this, but I'm sure the Internet does.
4. Read the course syllabus and tentative course calendar, and write down any questions that you might have about those, or any subjects that you think are missing from the calendar. **Also**, write down one or more things that you would like to leave this class being able to do that you do not yet know how to do!
5. Read the Newman chapter+section and the Wilson paper. For each of the two separately, (1) provide a brief (1-2 paragraph) summary of what you feel the main points of the reading are, and (2) list two or more questions that occurred to you as you were reading it.
6. Read, but do not summarize, the O'Shea slides. This covers some general points about computing in astronomy and astrophysics and has some potentially useful information for you, but doesn't merit a summary!