Spencer's Thesis Schedule

February 26: Thesis proposal due.

February 26 - March 13: Preliminary work while I am still in still in winter classes and visiting graduate programs. Will focus on getting back up to speed, making sure the old scripts and classes work as intended, and recreating results from my SULI report to ensuring the results are still consistent. If everything is going smoothly, I'll continue working through existing issues on Github and focus on implementing speedups.

March 14-27: Finals week and Spring Break. I likely won't get a whole lot done in this period, but will try to finish up any lingering work from the above and freshen up on Bayesian inference and hierarchical models from journal articles and your notes.

March 28: First day of Spring Quarter classes. This is when I will begin to have real dedicated time to be working on the thesis nearly every day. I decided against taking a fourth class so I'll have extra time to be working on research. We can begin weekly communication in whatever form we decide works best for both of us.

Weeks 1-3 (March 28 - April 17): Focus on any additional speed-up work, implement smooth-component correction, implement convergence map binning and convergence map plotting (I think you made some progress on this right before I left?). Check for any differences in correlation function results and runtime.

Weeks 4-6 (April 18 - May 8): Begin inference work. Although I've learned a lot on this front lately, will still need guidance on implementation steps. Which hyperparameters should we pick? My gut instinct would be either the halo mass function or SMHM relation since perhaps they would be more constrained in a small field of view compared to larger-scale cosmological parameters like density parameters. Is this line of reasoning incorrect? After a hyperparameter(s) is chosen, should we start with the more straightforward problem of looping over possible hyperparameter values and quantifying the error in halo mass predictions from our predicted shear - or attempt to directly infer hyperparamter by exploring parameter space with MCMC? Is what I'm saying making any sense? Obviously many questions to be answered, but I am beginning to have an idea of how this section will play out. This is the part I am most excited about.

Week 7 (May 9 - 15): Decide what content I want in the oral presentation, create nice graphs, update/reformat SULI presentation to work with new project goals. Possibly make a poster, although I won't necessarily need one. While work can continue, this will be a good point to step back and decide what will be realistic to finish before the thesis is due roughly a month later. The written portion of the thesis on inference should be starting to take shape.

May 13-14: Oral/Poster presentation of thesis (written thesis and research does not have to be completed yet).

Week 8 (May 16-22): Continue work on inference and any lingering speed-up issues. Writing on inference section should be complete or nearly complete.

May 23: First draft of thesis is informally due. You and Dr. Pando read the draft and return comments/criticisms. We can also take this time to assess what, if any, additional research goals we want to accomplish before the final version.

Weeks 9-10 (May 23 - June 5): Make revisions to thesis and complete any remaining research goals. Will also spend time documenting work both in code and on Github. Hopefully we can finally merge to main!

June 6: Thesis due.