

First and foremost, whether or not you write a thesis (unless your department requires it) is a personal decision. There are plenty of good reasons to write one, and there are also plenty of good reasons not to! It's an excellent way to get acquainted with the research process, though writing a thesis can still be rewarding and useful even if you're not currently planning on going to grad school. (I'm not!) But it's also very time-consuming, and there will be some obstacles and stress no matter how well you plan. It's totally okay to decide that's not for you! If you do decide to write one, here's some of my advice:

- Choose a topic that interests you. This sounds obvious, but it can take some thought to figure out what kinds of questions you find exciting. You may have to switch directions more than once in the beginning; I switched my topic almost completely during the planning phase. The key is to be honest with yourself and with your advisor about what you want to focus on – you're going to be working on this project for a while, after all!
- That said, be prepared for your research questions to change during the research process. In all likelihood, the specific questions you lay out at the beginning of your project will shift for all kinds of reasons. That's okay, and it can actually be a really important part of the research process as you learn more about your topic. As long as you've chosen a broad research area you're interested in (point #1), these shifts in direction will still lead to a project you're excited about.
- Keep track of your methods and progress. Whatever kind of research you're doing, keeping a lab notebook is crucial. It allows you to write out your procedures before you actually go into the lab, and also to write down where the plan changed throughout the day. This will help you next time you're in the lab, if you have to repeat a procedure that you've modified, and these notes will be super important when you're writing up your thesis after you're finished with the lab work.
- Plan out your writing schedule. You'll have to turn in a detailed schedule for your lab work (or whatever form of research you're doing), but it's also really useful to set a schedule for writing your thesis once you get to that stage. The thought of writing an entire thesis can be daunting, but planning on writing it in small sections can help a lot.
- Make time for yourself. A thesis is a lot of work, and it can easily expand to fill your free time. Make sure you give yourself time to not think about your thesis at all (and preferably not do any other schoolwork either). Planning can be useful here, since it will help prevent deadline crunches. Taking time off can help your thesis – when you come back to it, you'll probably be able to think about questions from different angles – but more importantly, it can help you. Give your brain permission to ignore your thesis sometimes.

I hope these tips are helpful! A thesis requires lots of time and effort, and some things (possibly many things) won't go according to plan. But your advisor, the preceptors, and your fellow thesis writers are all here to help you; this support system can help you solve pretty much any problem that arises. And at the end, it'll be a huge accomplishment. Best of luck, and congratulations on starting this journey!

Maddie Goldberg '21



Maddie Goldberg

First of all, doing research with Prof. Wofsy and writing the thesis in the EPS department was the most meaningful experience I had at Harvard. So my first piece of advice is to try to enjoy the process, even when it's hard. One thing I learned is that being happy allows you to do better/more work, instead of the other way around. I think the best way is to work on your thesis a little every single day, even if it's just something small like reading and thinking about the abstract of one article. If one part of the project is frustrating, find some other easy and fun piece to work on. The project becomes part of your life and routine, and part of what makes you happy.

I think the most important thing you can do as a senior thesis writer apart from trying to be happy is communicating well with everyone involved with the project. Something I had a hard time with was thinking that I hadn't made enough progress, and so it wasn't worth talking to my advisor. Just a quick email saying "This is what I worked on this week, I didn't make a ton of progress because X reason, and this is what I plan to do next" goes a long way. It lets your teammates know you're still engaged. They might know how to solve X really quickly and save you a bunch of time. Maybe most importantly, it reduces your stress.

Good luck on your thesis and your senior year!

Ethan Manninen '21



Ethan Manninen



## SENIOR THESIS CLASS OF 2021

Science is a team sport! Writing a thesis is an incredibly valuable opportunity to pursue a project that is entirely your own - but while you may be at bat, there is a whole team of players cheering you on to help you hit that home run. Bad baseball analogy aside, I think that the best thing I did when writing my thesis was to ask ALL my past science mentors so many questions about the actual science I was pursuing as well as how to do successful and effective research. And I mean everybody: my advisor, the grad students and postdocs in my lab, the postdocs who had since left the lab, the preceptors, my fellow thesis-writers, my friends from other scientific fields, my old TFs, and even my old high school chemistry teacher - basically, anybody who had taught me science became part of my thesis team and helped me craft a stronger, more complete, and more fascinating scientific narrative. You'll be surprised at how much your teammates can inspire and uplift you!

Elida Kocharian '21



Elida Kocharian

