

An aerial photograph of a city skyline, likely Philadelphia, featuring a river, a stadium, and various skyscrapers. A semi-transparent blue box is overlaid on the left side of the image, containing the title and author information.

How to Survive Grad School

(Advice from a student who is supposedly surviving)

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**GENERAL GRAD SCHOOL
ADVICE**

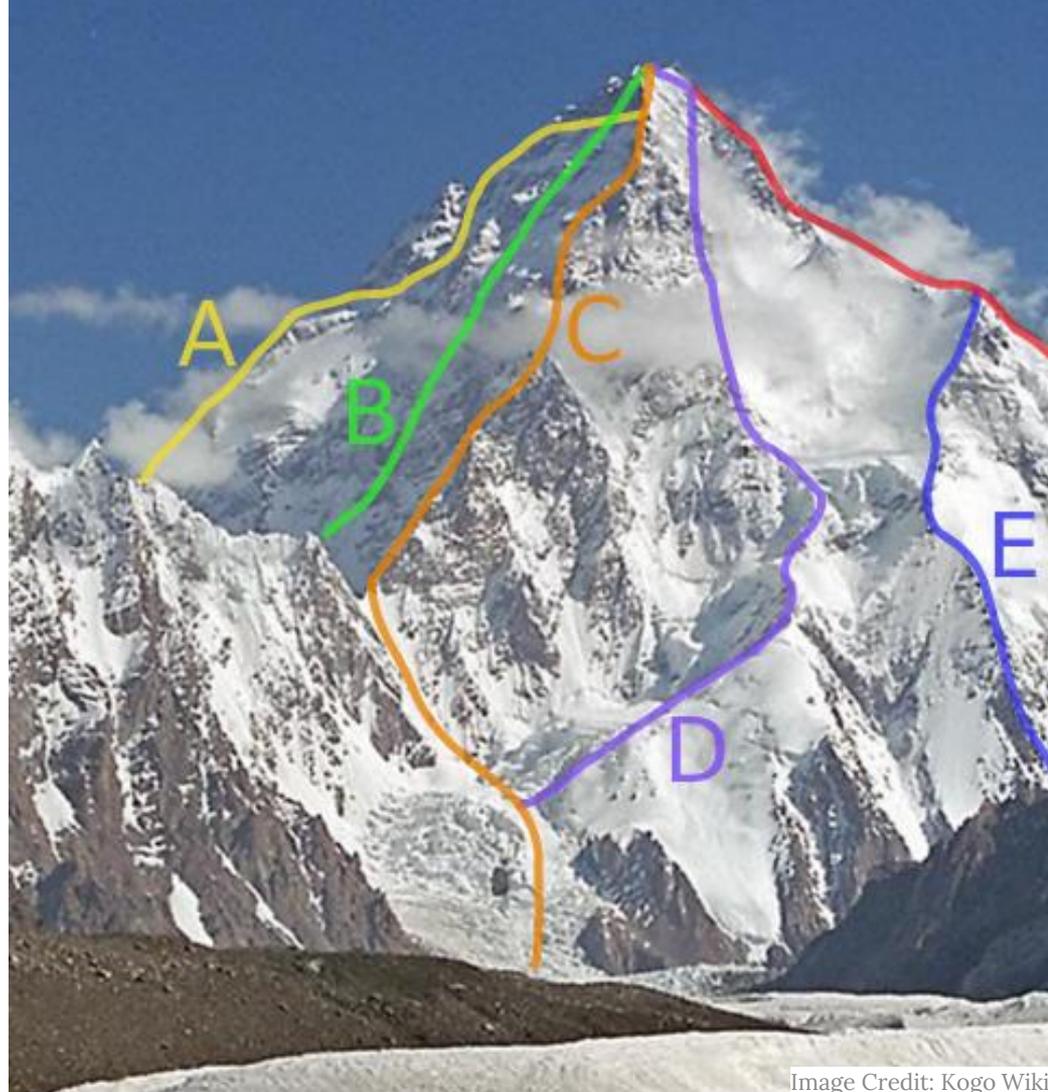
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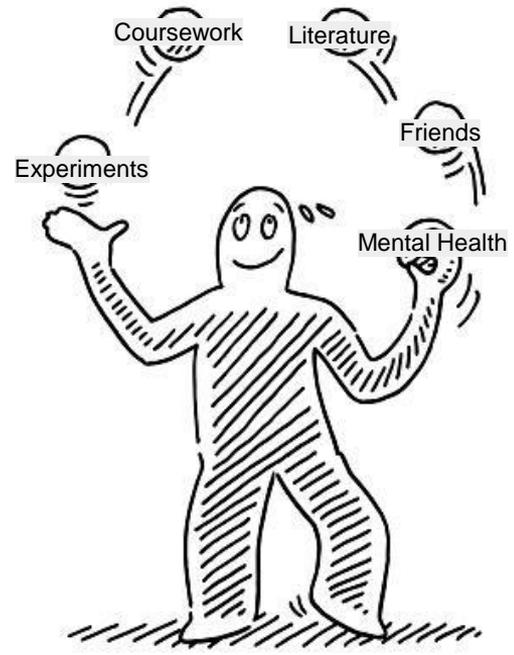
RECAP

DISCLAIMER

Every PhD journey is different.

What do YOU want out of your time here?





“The trick to juggling is to figure out which balls are made of glass and which are made of rubber.”

—Anonymous academic on twitter

Taxes + Health insurance

- In general, taxes are not taken out of your stipend. You can file quarterly or annual taxes. They are complicated and no-one within BGS will give you professional advice. If possible, talk to an accountant.
- Full-time students need coverage.
- If you enroll in Penn Student Insurance Plan (PSIP), it is covered by BGS. Vision (Aetna) and Dental (Penn Dental Student Plan) can also be fully covered. Take advantage of having health insurance, make your appointments

Grad resources

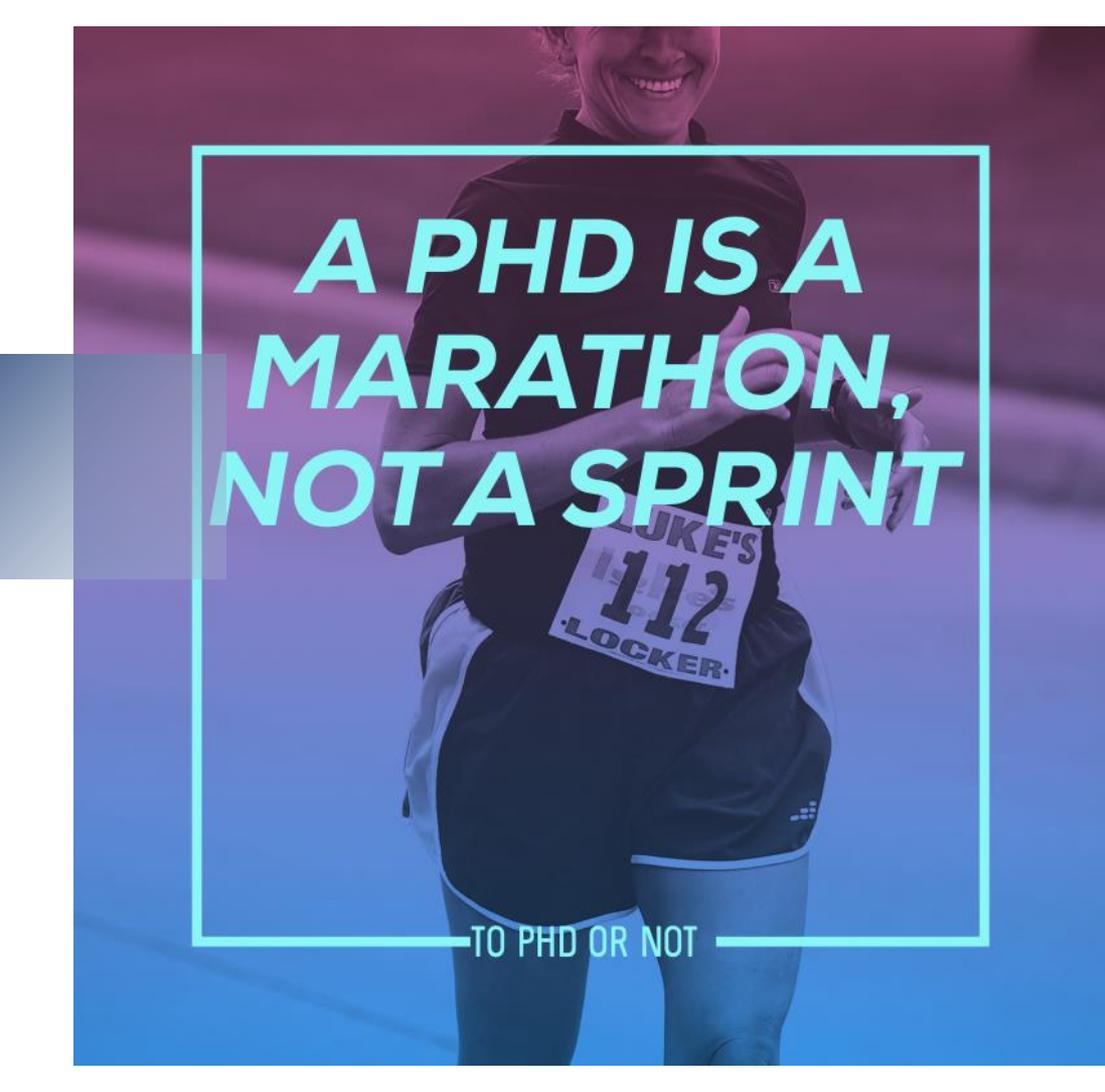
- Guaranteed fellowship support for the duration of training
- Opportunity to transfer to a different graduate group throughout the first year if interests change
- Software licenses paid for by BGS: Adobe Creative Cloud and Prism
- Student intervention services (for housing insecurity)
- Graduate Emergency Fund

Reimbursement

- \$1,000 per fiscal year for conferences (if presenting)
- \$1,500 per BGS lifetime to attend an off-site course
- \$1000 per BGS lifetime to attend a career-development conference
- Other reimbursement resources available

Penn resources

- Gym membership is free to PhD students.
 - Pool access, rental equipment, intramural sports
- Counseling and Psychological Services (CAPS) available for free.
- Peer counseling available 24/7 via Reach-A-Peer (RAP) Helpline



**A PHD IS A
MARATHON,
NOT A SPRINT**

— TO PHD OR NOT —

FIRST YEAR ADVICE

- Classes
- Rotations
- Choosing a thesis lab
- Extracurriculars



CLASSES

- Do not mistake them for undergrad courses. They are designed for you to learn deeply, connect themes and integrate with your research.
- Attend lectures. Talk to your TAs. Do not cram.
- B is passing, although fellowships and certain jobs often request transcripts



ROTATIONS

- Field/methods: Be open to exploring new areas and learning new techniques
- Lab environment: Collaborative, competitive, 9am-5pm, or nights and weekends, size, age, trainee level, new vs established
- Prior/current trainees: What do they say about the lab? Where are they now? What is the publication record? Does that matter to you?



CHOOSING A THESIS LAB

- Mentorship style: independence, feedback, communication, expectations (science, work-life balance)
- What will your project be? Is it feasible within the time you hope to graduate in? Is it interesting to you?
- Funding: Your stipend is guaranteed! But always talk about how the lab handles reagent requests, model organisms, number of technicians, etc.



CLUBS AND EXTRACURRICULARS

- Don't overload your first semester or forget what your end goals are...
- But, Penn is full of amazing opportunities and you should take advantage of that.
- Clubs can promote your career development, but you're also allowed to just do something because it is fun.

HOW TO INTERVIEW FOR ROTATIONS/LABS

Reach out to PIs via email, asap

- Email etiquette is *not* a lost art

Set up meetings with multiple PIs

- You should never feel pressured to accept a rotation or formal invitation to a lab in a single meeting
- You should be honest if you are considering other labs

Prepare for the meeting

- Do your homework!
 - Read faculty page
 - Read one or more recent papers, or at least abstracts
- Talk to grad students who rotated or have joined
- Be prepared to talk about your interests & expectations
- Update your CV

ROTATIONAL INTERVIEW ADVICE

Show up on time

Let them know WHY you are interested

Be prepared to tell them about yourself, your schedule, your career goals, etc.

Questions to ask:

- Research questions, obviously
- Are you looking to take on a thesis student? How many students will you take this year?
- Do you have space and money available for a Ph.D. student?
 - NIH RePORTER (<http://projectreporter.nih.gov/reporter.cfm>)
- Will you be at Penn for the next 5-6 years? (if not tenured, or if being recruited somewhere else!)
- What projects are available in your lab?
- What is your mentoring style? How often do you travel?
- What are your expectations for your graduate students? Time in lab, time working, holidays, presentations/publications, academia/beyond

SUCCESSING IN ROTATIONS

- Remember, a rotation is for you to learn and to evaluate the lab as much as it is for the lab to evaluate you
- Show up when you say you will (a lesson for life)
- Get to know the other members of the lab
- Work hard but also work smart
 - Know what you are doing and *why*
 - 'An hour in the library can save you a month in the laboratory'
- Read the background papers
- **Ask questions! Ask for help!**



FINDING A GOOD MENTOR *FOR YOU*

Are your communication and work styles compatible?

- Emails
- Meeting frequency
- Hands-on/off
- Comfortable talking

Mentoring style

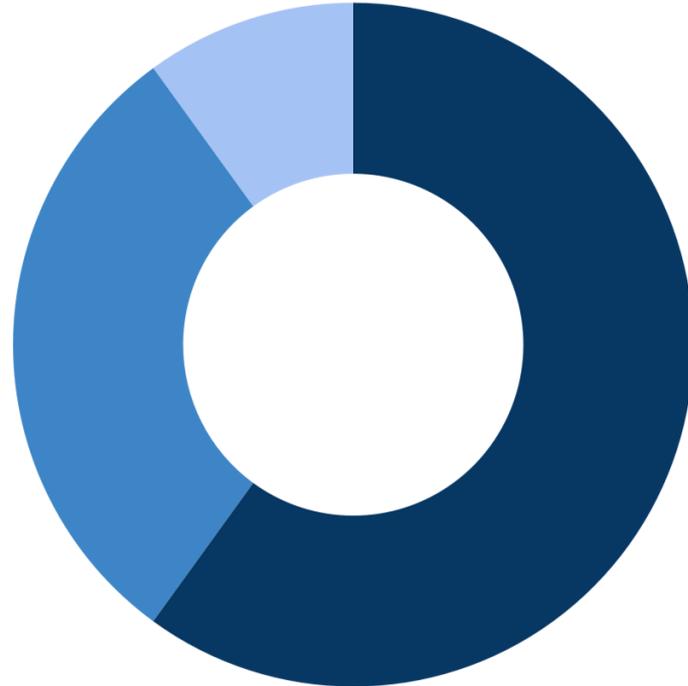
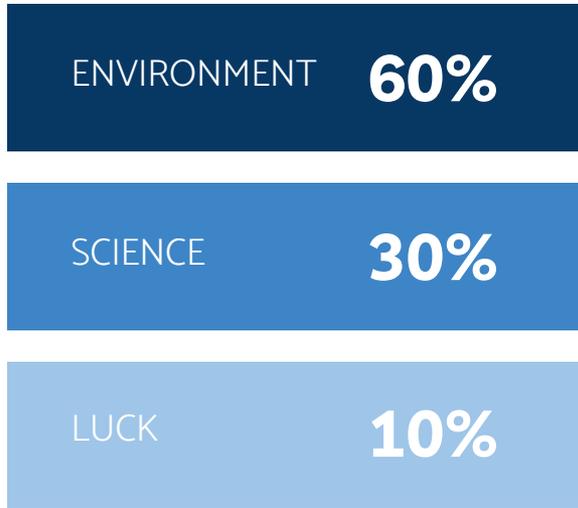
- Academia or bust?
- Willing to talk about life or just science?
- Conference attendance
- Help networking

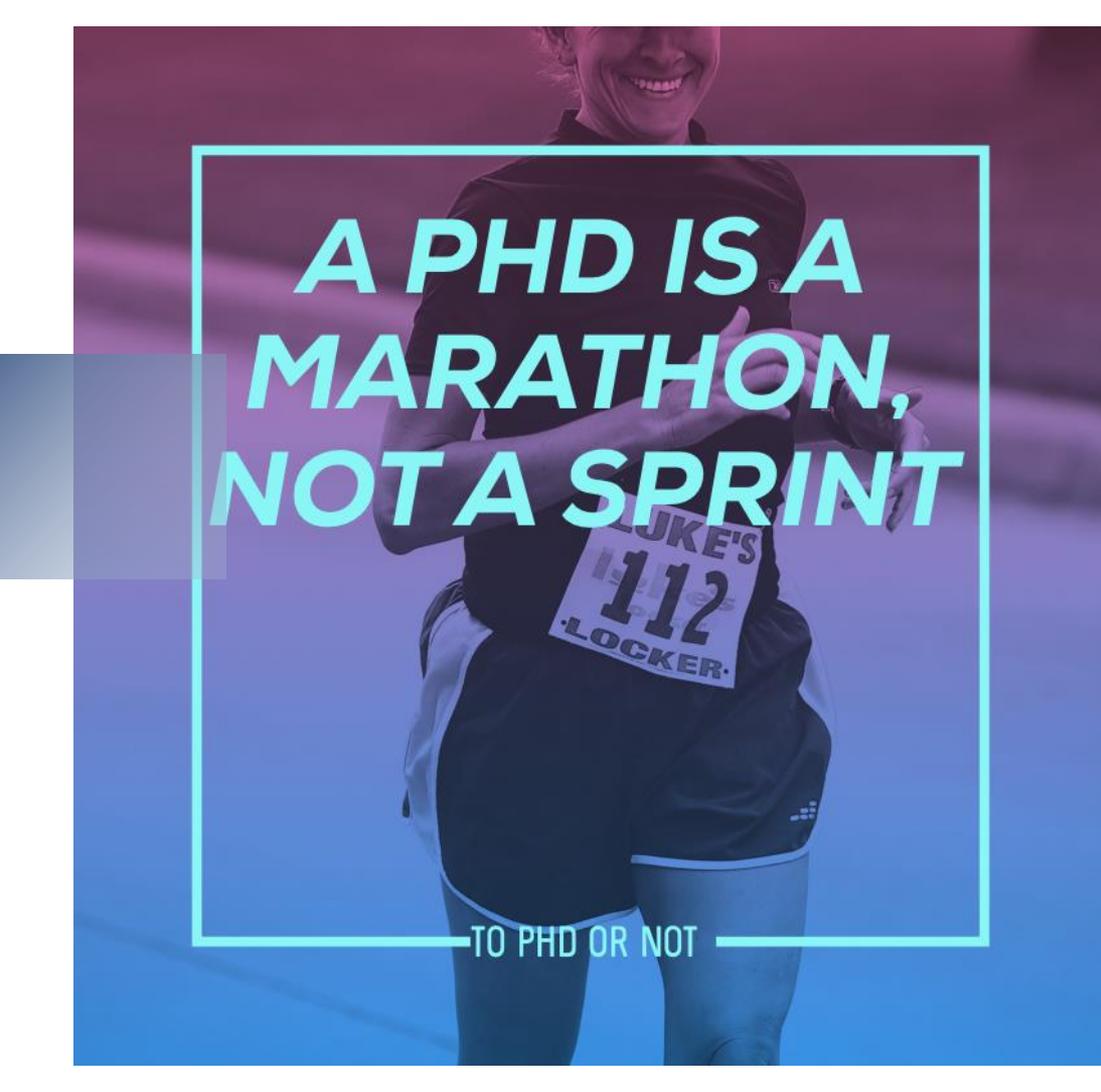
Mentors outside of your PI

- Post-docs/Colleagues
- (Future) committee members
- PIs at other institutions

WHAT MAKES FOR A GOOD PHD LAB EXPERIENCE

(my two cents)





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— TO PHD OR NOT —

GENERAL GRAD SCHOOL ADVICE

- Organization
- Learning outside (or inside) the classroom
- Read the literature
- Apply for fellowships
- Building your network
- Work-life balance

ORGANIZATION



Time Management

- Keep a calendar for lab, classes and meetings
- Managing UP
- Map out how long you *think* something will take, and multiply by 1.5.
- Keep an eye on big deadlines and add in buffer time those weeks – exams, lab meeting presentations, talks



Data Management / Lab notebook

- Make good habits, early. Find what works for you. This will save you A LOT of headache later
- Use an online lab notebook in addition to whatever your PI requires - lab archives, benchling
- Don't forget to keep track of negative data (even if you're sad about it)
- Backup your data!! Get an external hard drive, cloud storage or preferably both. Use them CONSTANTLY - PennBox, Dropbox, Google



Planning, Planning, Planning

- **Daily:** What is your intention for that day? What are *must do* items? What are *should do* items? What can wait?
- **Weekly:** Have a weekly 'planning' day where you map out the experiments for the next week
 - Gather and read the protocols you will use that week
 - This will help you ensure you have all the needed reagents, including *time*
- **Monthly/Bi-monthly:** Check-in with your PI/lab mentor. Are you on the same page about goals and priorities? What is the rough outline of what you hope to achieve that month?
- **Yearly:** Individual Development Plan (IDP) meetings with your PI. What worked that year? What do you need more or less of next year?

LEARNING INSIDE (and outside) THE CLASSROOM

What additional skills/training will you need for your project?

- Statistics – classes available
- R/Stata/MATLAB – free access
- Prism – free access through Penn
- Adobe Photoshop/Illustrator – free access through Penn
- **DIY-transcriptomics** <https://diytranscriptomics.com>

You can take courses outside your department (with permission)

- After candidacy
- Must be over 400 level
- One per semester

READING THE LITERATURE

You gotta do it

- Make time to read, but use that time efficiently
- Read abstracts/glance over figures to decide what's worth your time

Organize your PDFs and use a citation manager

- Endnote, Papers, Mendeley, PaperPile, Readcube, Zotero

Stay up to date with your field

- PubCrawler, Google Scholar Alert, Readcube Recommendations, Twitter & other social media, BioRxiv
- **Try to avoid endless tabs of doom**

APPLYING TO FELLOWSHIPS

National Fellowships:

- NSF and NIH NRSA (F31/F30)
- HHMI Gilliam Fellowships (underrepresented groups in science)
- Ford Foundation Fellowships
- DoD SMART Fellowships

Penn Specific:

- Training grants (T32) are a great experience – talk to your programs about what ones are available for you and their requirements
- Gloria Chisum Graduate Fellowship (nationally underrepresented populations)
- Blavatnik Family Fellowship
- Penn Prize for Excellence in Teaching by Graduate Students
- GAPSAs-Provost Fellowship for Interdisciplinary Innovation

Grad Center at Penn keeps a ‘Highlighted Opportunities’ page

Talk to your PIs about their expectations for your funding (though it is guaranteed)

APPLYING TO FELLOWSHIPS

Recommendation letters:

- Keep in touch with your former PIs and do a good job in your rotations!
 - Ask at least 1 month in advance. Include CV in email
- Keep an eye on deadlines and ask for what you need well in advance

Keep summaries of your undergraduate/technician/lab rotations

Talk to students who have applied to/gotten these fellowships

- Your program administrators will often know who has successfully applied and be able to provide you with examples

Apply even if you don't think you'll get it, especially to the random ones

BUILD YOUR NETWORK

For Support

- Grad school is not a scarcity of riches
- Make friends. Lean on these people when you need it, be there for them when they are having a hard time.
- Ask an older student/trainee to go for coffee

For Science collaboration

- If you can help, help
- Share protocols and reagents (with permission)
- Collaboration is reciprocal

For Career opportunities

- Keep your professional social media somewhat up-to-date
- 'Thank you emails' after meeting someone you think you'd like to maintain a relationship with in the future

Student Organizations (non-exhaustive)

LGBTQIA Students in Biomedical Graduate Studies (LTBGS+)

Ernest E. Just Biomedical Society (E.E. Just)

Penn Science Policy and Diplomacy Group

Penn Graduate Women in Science & Engineering (PGWISE)

Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS)

Students Confronting Racism and White Privilege (SCRWP)

BGchessA

BGS Book Club

BGS Social Gaming

Penn Biotech Group

Penn Graduate Consulting Club

Nucleate

Tech Transfer Office

<https://www.med.upenn.edu/bgs/student-organizations.html>

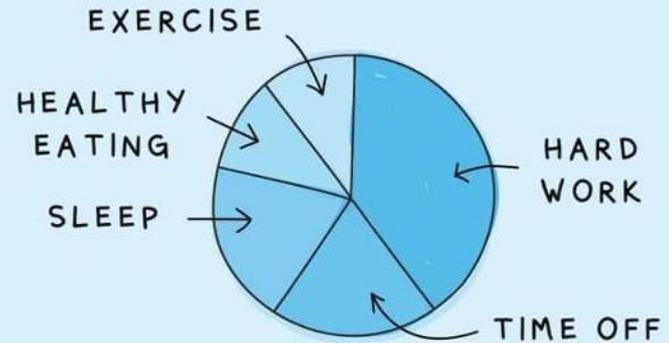
WORK-LIFE BALANCE

- You are salaried – remember to give yourself vacations and weekends
- Keep doing things you love
- Maintaining your health is important (whatever that looks like)
- Sleep, see family, make friends, explore Philadelphia

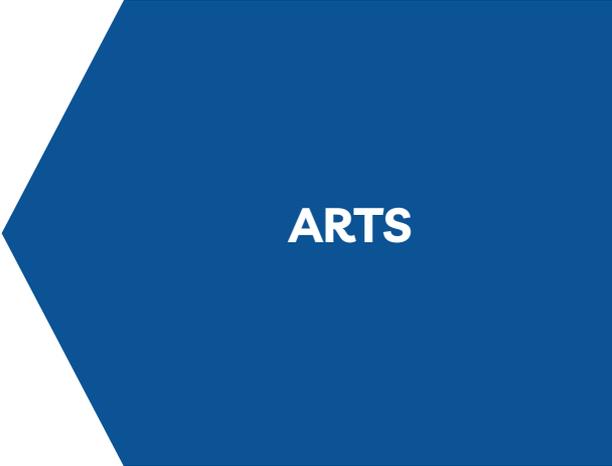
WHAT I THOUGHT WOULD
MAKE ME PRODUCTIVE



WHAT ACTUALLY DOES



EXPLORE PHILADELPHIA



TAKE HOME MESSAGES

- Choose your mentor(s) wisely
- Figure out systems for time, data, and literature management
- A Ph.D. is about learning
 - This happens in waves
- Make networks - friends, mentors, peers
- Work/life balance is key - make time for yourself and friends
 - This is a large chunk of your life
- REMEMBER TO ASK FOR HELP

I BELIEVE IN YOU

Reach out to me with questions!!



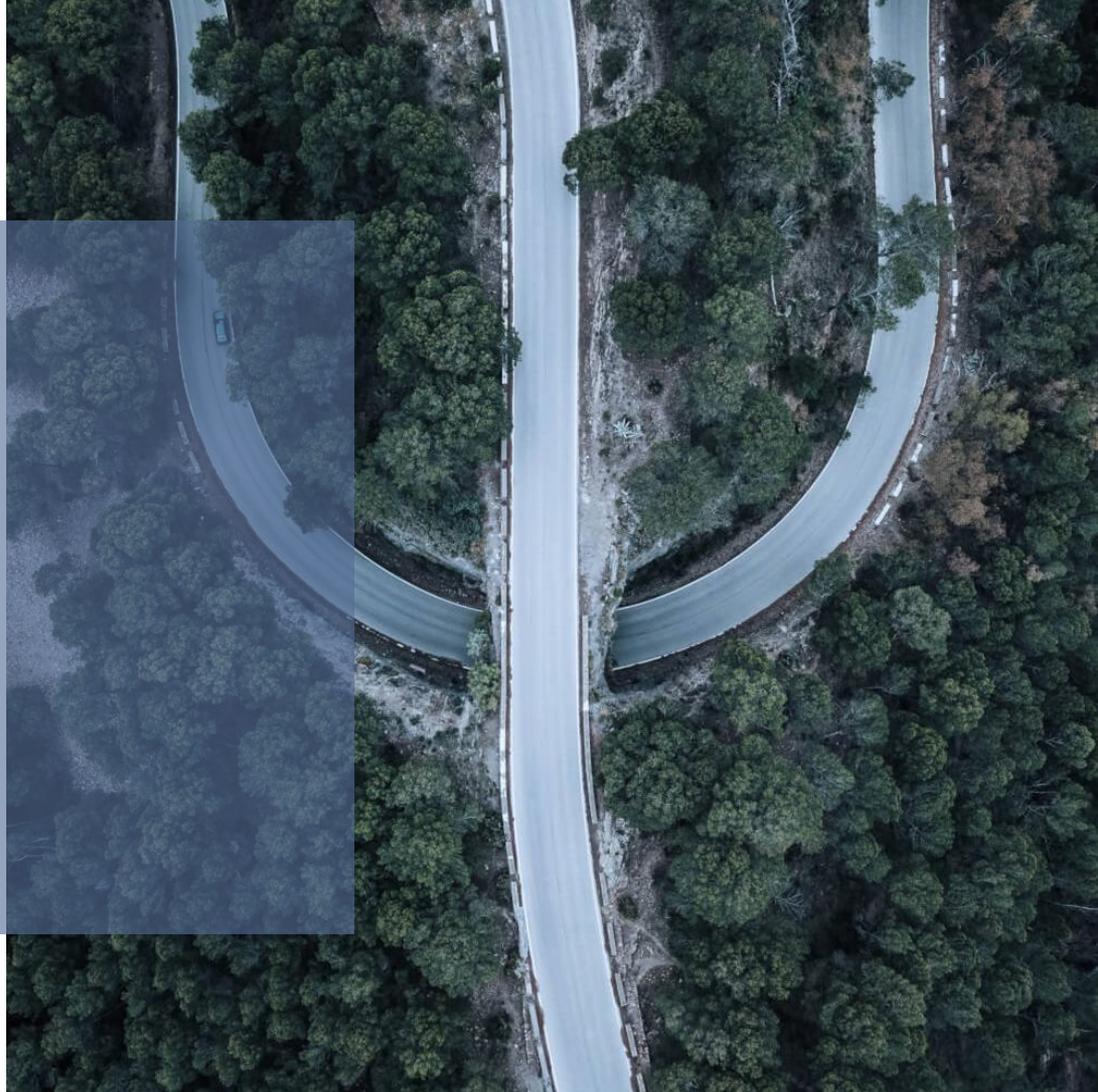
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[Sonia Lombroso on LinkedIn](#)



MORE RESOURCES

- “The importance of stupidity in scientific research” Martin A. Schwartz, Journal of Cell Science, 2008, 121:1771
- <http://jcs.biologists.org/content/121/11/1771>
- How to Complete and Survive a Doctoral Dissertation, Sternberg, David, N.Y.: St. Martin’s Press, 1981
- Getting What You Came For: The Smart Student’s Guide to Earning a Master’s or Ph.D., Peters, Robert L., N.Y.: Farrar, Strauss & Giroux, 1992
- “Graduate School: the movie” Cori Bargmann, Current Biology, 1995, 5(7): 695
- Twitter/Facebook: ShitAcademicsSay @AcademicsSay
- <http://phdcomics.com/>

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