A career planning guide.

README.md

The Leek group guide to career planning

This guide is a slightly modified version of the Langmead Lab career planning guide that is awesome and was created by Ben Langmead.

Why plan your career?

I know that you want to be a scientist because you love science. That is why we all want to be scientists. But if you want to be a professional scientist and get paid money to do it, you will also need a plan for professional development. Having a career in science can be incredibly rewarding - teaching students, doing research you consider important, and communicating those ideas to a big audience are all great. There are also some things about it that are hard. One thing that I think is unnecessarily hard is career planning. If you use this guide it can help you make sense of the opportunities and challenges that come with a data science career starting as a grad student or postdoc in my group.

Why this guide?

One major purpose of graduate school or a postdoc is to prepare you for your dream job. Grad school/a postdoc is extremely valuable time. Making yourself an attractive job candidate is a full time job. This document is one way that I will encourage you to do something you must do, no matter how painful it is. **You must make a plan**. This is not just a matter of listing your research goals, though that's part of it.

Your advisor's bias

I think some students are under the impression that faculty really want them to get academic jobs after graduating and would be disappointed if they don't get one. I don't know if that is true for other people but it definitely isn't true for me. I have exactly one goal when you graduate. My goal is that you get a job that you like and that makes you happy. So this guide will be agnostic to industry/academia or really any other choice you want to make as best I can.

Figuring out what you want to do

One of the hardest parts of planning as a graduate student or postdoc is figuring out what you want to do next. If you have

questions about this you should come ask your advisor. But here are some relatively rough guidelines of the types of jobs that you could go after (this list is non-exhaustive and if you want to do something else, that is great, but we might need to adapt the plan). These are by necessity very brief. Rafa's post on hard/soft money jobs and my adendum on liberal arts colleges as well as this excellent post on academia versus industry for a junior person are great places to start reading more.

- **Tenure track faculty/principal investigator research school**: You will primarily be writing lots of papers and to a greater or lesser extent (a) teaching, (b) writing grants, and (c) advising students. This job has some pressure associated with it because you are usually expected to get grants/write methods papers where you are in charge, but in some ways has the most freedom if you are successful.
- **Tenure track liberal arts college professor**: You will write fewer papers and do more teaching. The grant pressure is less but is steadily growing. This is a good option if you are really into teaching and engaging with undergrad students.
- **Research track faculty**: This job varies a ton by institution. It can be anything from a heavy teaching load to pure research and everything in between. Some places, like Hopkins, tend to treat these faculty really well. But that isn't universally true. These jobs tend to require you to get fewer individual grants/write fewer methods papers but that isn't a rule either.
- **Industry**: I have less experience on this side so I'm hesitant to make too many generalizations. That being said I think there is everything on this side from pretty research-like jobs, to engineering style jobs, to data analysis jobs. If you are into this area your duties will depend a lot on your exact job. We have some awesome alumni of the group in tech jobs of various sorts and I'd be happy to put you in touch with them if you want to explore more.

Worksheet

The rest of this document is a worksheet for you to fill in and keep updated. Write your answers in blue so they stand out. We'll devote one meeting every 6 months to discussing the plan. Before each meeting, update the plan to be current.

What's your goal?

- Where will you go to find relevant job listings? Hints: CRA, Science/Nature jobs, Amstat Jobweb, Florida Statistics Jobs...
- At a high level, academic jobs are a mix of research and teaching. A standard research-oriented "hard money" position is one where 75% of your salary is supported (in return for your teaching and administrative efforts), the other 25% you cover from grants, and you typically teach 2-3 courses a year. A "soft money" position is one where the majority (perhaps all) of your salary you cover from grants. You will usually teach 0 courses a year in this system; maybe you have to give some guest lectures. I don't know as much about pure teaching positions, but I think they tend to be 100% supported but you teach upwards of 5-6 courses a year. I know less about industry jobs, but the skills they value tend to be (a) software engineering, (b) really applied analysis, (c) communication/collaborative skills. You will likely spend very little time teaching and most time either analyzing data or building software. What sort of mix are you looking for?
- If you are considering academics what kinds of students would you like to mentor?
- What kinds of colleagues would you like to have (statisticians, scientists, business people, etc.)?
- Paste links for three jobs that you like. Why do you like those jobs?

Who are you?

- What is the coherent "story of you" that you want your CV to tell?
- What is it that you do better than everyone else?
- What's the 1-paragraph description of what you will do as an independent investigator? (Easy to find examples of such statements on websites of you favorite labs)
- Who are the top 2 or 3 people/labs you admire and want to be like when you are independent

How do you fit?

- How does your story fit with the kind of job you're hoping to get?
- Who (specifically or in general) will advocate for you at a place like that?

How will you be funded?

- What grants will you apply for during your time here? What are the deadlines?
- What grants will you apply for in in the future (if you are going academic)?
- How else can you exhibit your ability to work independently?

How will you exhibit your mentoring and teaching abilities?

- Hints: maybe teach classes, class sessions, post teaching materials, record lectures

Networking

- What conferences / seminars / hackathons / etc should you attend? What are the deadlines?
- How can you expand your network in a way that will open doors? (Hints: lab visits, internships, competitions)
- Do you feel comfortable writing a blog or using social media professionally? (this is absolutely the best way to get an industry job as far as I can tell).

Recommendations

- Who do you want to write your recommendation letters?
- Do you need to meet and/or work with more people before you have all the letters you need? If so, how will you make this happen?
- What do you want those letters to say?

Learning more

- What is the best "job talk" you've seen and what did you like about it?
- What have you learned / would you like to learn about the hiring process from the perspective of the people doing the hiring? For academics I can be a useful resource, for industry we can talk to lab/department alumni.

Where can you go for help?

- Who can you go to for questions about grants/scholarships/awards?
- Do you know anyone who has applied for/got those grants/scholarships/awards?
- Who can you go to for help about jobs (besides your advisor(s))?
- Do you know anyone who had success on the market recently?