

General life/academic advise

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1 Set goals

Set everything from long-term goals to daily goals. If you do not, then time will just slip away. Continuously evaluate your progress toward the goals you have set. If you are falling behind in reaching those goals, ask yourself why, then do something about it.

You are working for yourself (and more broadly society and biodiversity, no pressure). The harder and more effectively you work, the better it is for you. Do not, however, just “put in hours”. Work hard and concentrate hard, and enjoy the work and concentration.

Strategies I find effective for time management (from Deep Work, by Cal Newport, Getting things Done by David Allen)

1. Keep track of the number of hours of focused, deep work you do each day. Strive for four hours. Deep work includes something you cannot train someone to do in a few days. Examples include writing, coding, reading a manuscript, identifying specimens. Shallow work includes pinning/sorting/labeling specimens, filling out forms, meetings, most emails. Don't let your percent of deep work fall below your shallow work. Have a bad day where you did not get much deep work done? Work out why and avoid this in the future.
2. break tasks into actions, and have a sensible task manager (like Omnifocus?). Transfer all of the tasks in your brain into that task manager (including things like buy batteries, etc.).

Each year we will make a professional development plan, and discuss our plans and a group, and one-on-one with me.

2 Begin to imagine your research program

If you plan to stay in academia, begin to think of what your lab's theme/research mission will be. Cultivate answers to the following questions:

1. So, what do you do?
2. How does your work fit into the “big picture” – what major questions does it address?
3. How do you differentiate your work from your Ph.D or postdoctoral adviser's work?

3 Learn to talk science

From John Thompson, a highly respected evolutionary biologist:

You will spend much of the rest of your life trying to explain concepts, hypotheses, and results to others. The ability to do so will not develop miraculously. You must learn from experience how to get your point across in research seminars, in classrooms, and in meetings with people outside your discipline. If you want to convince colleagues that you have something important to say, you need to be able to keep them awake and interested during a seminar or a discussion. Think about how often you have been bored by having to listen to a speaker who wastes an hour of your time as he or she mumbles or reads to you — slide after slide — a disjointed talk that makes no important or interesting point. The same applies to giving lectures to students. With so many capable scientists competing for jobs, universities should be able to keep only those faculty who are both good researchers and good teachers. With the keen competition for jobs that now occurs, that is what will happen more often in the future.

So get all the experience you can get and learn from your mistakes. Watch carefully how others give seminars and lectures. Take the best from what you see in them and work out which of those techniques will work well for you. The structure of a good talk is completely different from the structure of a scientific paper. Your goal should be not only to convey information on your recent work but also to put that information into the kind of broader context that is not possible in a scientific paper. The most boring talks are those that are nothing more than a description of the methods and an endless series of tables and graphs. Your audience deserves more than these details, as important as they are. The audience deserves to hear from you what these results mean in a broader sense and why they should care.

I will also add that finding your voice can be difficult. You will look at your colleagues confidently talk about their projects and wonder how they are so amazing. They are no more brilliant than you, they just play the part better. Find a way to instill confidence within yourself. Celebrate your successes! Stay away from people who are not your advocates. Don't compare yourself to others, just work as hard as you can toward your goals. Become comfortable with what you know, and what you do not know. Treat people like colleagues and you will be treated like a colleague. Never say the words "just" or "only" when introducing yourself or describing your work.

4 Begin to develop your mentoring, outreach and teaching philosophies and skills

As a scientist my goals are to promote biodiversity conservation (through research, teaching and outreach) and promote diversity in the sciences. Maybe you have similar goals?

As a graduate student/post-doc, you will continuously need to make decisions about what projects and outreach events to focus on. To help you prioritize, begin to assemble your general goals as a scientist and choose based on advancing those goals.

Mentoring is at the core of being a scientist. And doing it effectively is hard. As a lab we will draft mentoring philosophies and plans for mentoring undergraduates (and graduate students, for post-docs). Each year we will revisit these plans and adapt them based on our experiences in the last year.

Some general guidelines I abide by:

1. Give positive feedback.
2. Find ways to convey that you believe your students are capable, and that you believe they have the potential to build on their knowledge and skills.
3. Be a whole person, be a witness, but avoid becoming entangled in peoples' lives
4. Set expectations of all kinds (for labwork, for the project, for the conversation)
5. Be accessible, but try to schedule the time you spend helping/giving advice to encourage independence

5 Seek additional mentors

Expose yourself to different ideas, methods, and mentoring strategies. Mentors can be faculty, post-docs and graduate students. Talk with successful people in your profession whenever you can. Rarely will you find someone you cannot learn something from. If you want to go into academia, begin now to understand what skills you need beyond research and teaching to be successful in the long term. If you want to use your skills to become a policy maker, start talking now with policy makers and engage in some policy-making activities when given the chance. These are just two examples. The general point is that you are not “just a graduate student”. You are a professional who is in the process of developing and honing a wide range of skills and perspectives that will allow you to attain your goals in an ongoing and seamless way.

For graduate students in particular, start thinking about your committee dream team early and cultivate relationships with those faculty. You can take their classes, and if none are offered, send them a email. Ask them about the directions their lab is going, but do your research and be able to talk to them about their past work. **Faculty members are people too!** I will happily talk about our lab's future research plans for hours and I will be excited to meet an early career researcher like yourself! I took becoming a professor for me to stop being intimidated by talking to professors! You don't need to wait as long as I did!

To avoid adding to the email/logistical load most faculty face, however, check to see if they have open office hours before emailing. If not, write, clear, easy to read emails that suggest a meeting time. Avoid back and forth on scheduling as much as possible (see process-centric reply in general logistics document).

Professional meetings are also a great time to meet people you have academic crushes on. Email them ahead of time, ask to have lunch with time and discuss their future research directions.

For those thinking about a career in academia, this is particularly important for helping you design your future lab. I once asked a new faculty member what she learned most from her post-doc. She replied “I got to see a different way of running a lab and mentoring”. Don't wait until your post-doc. Start now. Listen to what people say about their advisers. The good things and the bad things. How would you do it differently? Also, we adaptively manage the Ponisio lab, so perhaps we can try out new strategies in our lab and see what happens.

5.1 How to get help

Though we are all in the same boat as far as trying to promote biodiversity conservation and science, the structure of academia means that helping people can hurt you (in the sense that you

are not spending time on your own projects). When encountering challenges with the science, lab work or computational challenges, first sit down and think about solutions yourself, then look for answers in the literature, then solicit advice from fellow lab-mates, students, and post-docs, then seek advice of the PI. Some tips for getting colleagues to help:

- make sure to thank people sincerely for their help! Like mentee relationships, positive feedback is important to colleagues and mentors.
- if the person you are asking help of can substantially contribute to the project, offer her/him coauthorship. It means she/he gets tangible credit for their help. Build a network of coauthors who compliment your skills
- try not to interrupt people in their work days and instead schedule a time with them
- if you want to bounce ideas off a person ask for general advice, invite her/him to lunch/dinner to keep it as much as possible outside of work hours and more social
- trade help explicitly (e.g., R help for lab help). You don't want to "keep score" but sometimes it helps when everyone feels like they are benefiting from an interaction

6 Be an advocate, fight unconscious bias

Science is done by humans. Humans are social, power dynamics exist. Humans are biased. As a latina, female scientist who wears dresses, one of my primary (and ongoing) struggles has been learning to respond to and combat biases and empower myself. Some strategies:

6.1 The Buddy system

1. Designate a Bias Buddy (Strongest when different race, gender, religion, etc.)
2. Remind each other before meetings, events
3. Call out interruptions. Ex: "I want to hear what Sarah has to say."
4. Give credit where credit is due. Ex: "I think Julio just said that 15 minutes ago."
5. Give emotional support. Ex: "She was not an advocate to you in there."

6.2 Responding to unconscious biases

When faced with a micro-aggression (from the Unconsciousness Project):

1. Start with empathy
2. Don't need pitchforks; maybe just cocktail forks (i.e., a casual, un-antagonistic conversation)
3. Use I statements, they cannot logic away your feelings and it makes people less defensive
4. Explain why you think it's a problem
5. Make explicit requests. This empowers the offending party with an action item

7 Maintain your emotional well-being

In graduate school you develop not only as a researcher, but as a person. Both types of growth are valuable, and will put you on a path to becoming an amazing scientist, communicator, mentor and teacher. All of this growth, however, can be overwhelming.

At the same time, the curse of academia is uncertainty. It is difficult to find funding for research and fellowships, and hard to find jobs. You spend a lot of time wondering what projects to work on, what questions are interesting. After your phd you generally have to move to a new place, leaving your friend network and lab, and start over again. The same thing happen after your post-doc when you get the job of your dreams.

Do what you need to stay healthy. If you are overworked, you will not be doing good science. Take a break, come back re-charged. Take vacations. Set a time during the week where you are not allowed to do work (Saturday perhaps?) and maximize the utility of that day (i.e., do something that makes you enjoy life and feel excited about the week ahead, not just chores).

If you need to talk to me about sometime in your life that is effecting your personal/academic well-being, please do so. I will be happy to listen.

But, I highly recommend that everyone sees a therapist. UC mental health services are amazing, and copays are \$15/10 graduate/post-doc for unlimited sessions.