General professional advice, philosophy, and policy

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This piece is the culmination of many conversations with folks in the lab over the years. The themes repeat themselves over time, and evolve, so my intent is to update the document fairly regularly. This document is the result of reading and hearing advice from others, including words of wisdom from veterans in my field. It covers my general advice for navigating graduate school, postdoctoral work, and academia broadly. It is a work in progress. Any suggestions are appreciated. Deep thanks go to Jackie Shay and Carolin Frank for their helpful suggestions and feedback on prior versions.

It takes extreme (at times) tenacity to put up with the scientific process and a career in science; so much so that it seems like too hard a job at times. However, ask around and I think you'll find any truly creative or independent field can seem this way:

> I've been absolutely terrified every moment of my life, and I've never let it keep me from doing a single thing that I wanted to do. – Georgia O'Keefe

> If you hear a voice within you say, "You cannot paint," then by all means paint, and that voice will be silenced. – Vincent van Gogh

And why is it worth the hassle to do science?

> Sustained by previous discoveries, we can go forth into the future, and by foreseeing the consequences of phenomena, we can understand once and for all the laws to which nature subjected itself. In the midst of this research, we can achieve an intellectual pleasure, a moral freedom that fortifies us against the blows of fate and which no external power can ever reach. – Alexander von Humboldt

In this vein, much of this advice is not about the nuts and bolts of doing science—that is what your trainings, workshops, and graduate courses are for—; rather, much of this advice is about operating as a functioning professional and human in the demanding field that science is. **An important goal is to find balance**. In this piece I have focused on aspects I believe are undertaught in graduate school and courses. We should respect our biology first, including our well-being, health, and learning to foster healthy interactions with our colleagues. I believe these aspects are primary to being a functional scientist, and/or to achieve whatever professional goals you are going for.

Working in a creative field, like art or science, is a privilege, and making a living from such a field could be reward enough (however, always compare salaries of different options you might choose!). If you don't feel the joy being in your field at times, maybe you should change course

and find the joy in other undertakings. In science, you should study what you love, and be a little obsessed with it. At the same time, what you study should be translatable and important to others, something others can appreciate, and, importantly, fund. More on that later. Creativity requires vulnerability, and vulnerability is not a bad thing—it can be a very good thing (e.g., see Brené Brown's work on this topic; she's got a Ted Talk).

I have organized this advice piece into a few short sections, with early emphasis on the most important things, in my opinion. First, it's an old cliché, but so true...

PEOPLE COME FIRST

Graduate school and the scientific journey are part of an independent journey. In many ways, you are in charge and on your own. Scary? Exciting? Both! The buck stops with you and if you don't figure out how to proceed in your given area of study (career), no one will do it for you. BUT, many people are there to help if you ask for it. Ask for it. Often. You are going to learn how to do those advanced, technical things you read about in scientific papers. The papers you will write will sound technical too by the time you're through with them. How will you do it? You will train gradually, of course, but you will coordinate with others (collaborators, mentors, and mentees) to get the work done. This is science—it can and should be highly social while also being highly independent. Without strong, positive connections with others, you won't succeed. How you interact with others ultimately determines your success. Nevertheless, you should start with yourself: your health should come first. I mention some specifics on health below (e.g., sleep, diet, exercise), which are about being good to yourself but for now focus on the importance of being kind to yourself.

Many people in academia have learned to push themselves to keep going when things are tough, and in the process get really good at beating themselves up. This can become the opposite of helpful, and the opposite of productive. Probably most people are kind to others and kind to strangers, but how kind are we to ourselves? Besides this being a nice idea, research shows (e.g., look up Kristin Neff's research) that being kind to yourself has many personal benefits and can even improve your performance and your relationships with others. We often beat ourselves up too much. We are nicer to strangers than we are to ourselves, but it does too much damage; to us, and to our relationships. "Be kind to yourself" is a cliché, but unkind behavior can be tricky to unlearn. However hard it might be to achieve it's not a complicated idea and you can start right now. Like anything, practice makes better. Try starting a daily practice, such as this meditation by Kristin Neff:

This is a moment of suffering.
Suffering is a part of life.
May I be kind to myself in this moment.
May I give myself the compassion I need.

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Be compassionate to yourself. Forgive yourself. Practice mindfulness and experiencing the now, which includes being aware of your inner critic and when you need to tell them to "go easy." Ask yourself, would you say the same things to others as you do to yourself?

Now, let's regard others. We are all lucky to be here [insert your current place, role, or position] and to be alive. You've done great things, and you're great in many ways, but you're fortunate more than anything else. You've benefited from others moving you forward and vouching for you. **This is true because people only advance through the permission of others**. Be humble. Accept a compliment, but don't buy into a fantasy that you've got to be more special than others.

> Don't buy in to your own BS. – Ancient Proverb

You are special and unique; so is everyone in their own way, especially to their family and to themselves. Everyone is the center of their own universe—always keep that in mind when interacting with people and you'll do well while also making the world a better place. You have to create a name for yourself, or a niche, etc., but when you start getting cocky, you create blind spots. Stay modest as you progress.

We can probably all conjure examples in which talented, skilled, or brilliant people found themselves rejected for opportunities due to hubris. A good book to understand this concept is *How to Win Friends and Influence People*, by Dale Carnegie. The title comes off as almost creepy, but I think this book has a lot to offer, including the idea that you can (and should) be kind to be successful. It's an old book, so you'll have to excuse the fact that it's mostly targeted towards US businessmen of the early 20th Century, but the main messages are timeless. Paraphrased: 1) Don't criticize others; 2) Do show appreciation of others; 3) Do see others' points of views; i.e., what's in it for them to do something you want to have done? These points tap into the age-old idea: it's not about you. (You might also consider reading *How to Stop Worrying and Start Living*, also by Carnegie. This book has some worthwhile tips for keeping tomorrow's worries from ruining today, but also has some really outdated ideas and may be too religious for some. Still, I took the book's advice and put the saying, "Every day is a new life to a wise person," on my computer display.) Dale Carnegie is known as the person whose professional development ideas created the American extrovert ideal that folx on the more introverted side of the spectrum may find troubling. It is true that books like Carnegie's celebrate extroverts, but I, who consider myself mostly an introvert, learned some very helpful tips from Carnegie's books—not necessarily how to act like an extrovert, but how to think more about other people's perspectives in my own actions. Balance these books with ones that celebrate introverts and the power of calm and quiet as well, such as *Quiet: The Power of Introverts in a World That Can't Stop Talking*, by Susan Cain. This book offers appreciation for those on the more introverted side and discusses how extroverts and introverts can complement each other nicely.

Another useful book worth reading and related to this topic is *Speed of Trust*, by Stephen Covey. Covey's thesis is that relationships are built on trust, and like the Carnegie ideas, relationships determine friendship and success. Covey has advice for how you can (quickly) build trust with other people. Hint: be honest, follow through on commitments, be reliable, etc. Finally, another great read for improving human interactions and your own piece of mind is *The Four*

Agreements: A Practical Guide to Personal Freedom, by Don Miguel Ruiz. It gets a little religious/spiritual (which can easily be ignored if you like), but the main messages (agreements) are very helpful: 1) Be impeccable with your word; 2) Don't take anything personally; 3) Don't make assumptions; 4) Always do your best.

Now, how do we proceed as scientists? What is the most important task for us to do regularly?

YOUR FIRST JOB IS WRITING, EVERYTHING ELSE IS SECOND

Writing is the first job

Like it or not, being a scientist, you've chosen to pursue a writing career. As a job duty, writing comes first. All new projects, proposals, ideas, and then finally journal articles and books, begin as written ideas that get further refined (through more writing). As mentioned above, social interactions are primary in life and professional work, but you've also got to get the primary work done. Papers and grants. Methods and reports. Notes and protocols. It's all writing, and how you organize your writing will be a major determinant of your effectiveness as a scientist. One of my advisors would often repeat that *science doesn't exist until it is published*. People will toil for years on research projects, spending extensive resources, but the research never comes to light in the world until they publish these results in objective, peer-reviewed publications. It might as well never have happened. That said, be patient with yourself and chip away at it every day (more on that shortly). Other thoughts below on writing are listed in no particular order.

Technical help

I had a music teacher tell me once that I need to focus on the cake, not the icing. What they meant is that I would practice mainly pieces that I enjoyed playing rather than improving my skills and broadening my abilities. There is room for fun in creative endeavors, but, especially early on, you must make time for learning the fundamentals and improve your writing over time. I view it as a life-long process, but I can see that I have improved at writing over the years. First, get your grammar and rules of writing straight. If you think you need to sharpen your technical skills, besides great workshops and resources offered by the University, I recommend grabbing a grammar book and reading it cover to cover. I read Strunk and White's *The Elements of Style* twice during graduate school. It is very brief but very helpful. I have also heard that *Rules for Writers*, by Diana Hacker, is a great resource.

Beyond the rules of English, technical help on how to approach organization and the behavior of writing is essential. I give each new grad. student or postdoc in the lab a copy of *How to Write a Lot*, by Paul Silva. I believe this has been the most important professional book I have read. It is written for scientists. Another great book with lots of great general writing advice is *Bird by Bird*, by Anne Lamott. There are many great advice books (AKA self-help). Devour them if you are so inclined. As a technical note, choose a reference software as soon as possible and build a library of references and pdfs. I like Zotero (free reference software), but there are so many to choose from. Take some writing time and set up and learn to use a reference software. It will pay

back your time many times over. Here is a good book tailored toward thinking about that dissertation question and touching base with it regularly through your writing. Baby steps: *Writing Your Dissertation in Fifteen Minutes a Day: a Guide to Starting, Revising, and Finishing Your Doctoral Thesis*, by Joan Bolker.

Shoot for two hours per day

Believe it or not, you are swimming in time right now if you're a grad. student or postdoc. You've heard the cliché, but time only becomes more limiting as your career advances. Writing regularly is probably one action that most students fail at, and it can determine whether they'll finish or not, especially toward the end of their degree. Thus, this is the one daily action you can take to best insure you'll finish and thrive. Ask yourself, can you invest two writing work hours a day on average for your future? If the answer is no, come talk to me because we should discuss strategies about how to prioritize your time. I think the toughest barrier to making a regular writing commitment like this is that it feels too much like a long-term investment. The human brain wants instant gratification, a payoff for hard work. So, instead of writing daily you chase the endless to-do list (to make those satisfying scratch marks). Emails to answer. Check. Supplies to buy. Check. Data to collect. Check. Samples to organize. Check. If you start and keep to a daily writing practice, you will begin to make much more satisfying scratch marks: Grant written? Check. Chapter submitted to committee? Check. Study published? Check! Give it a month and see how regular writing changes your life.

Don't dwell on "publish or perish." Instead, fixate on *publish and flourish*. (In fact, try not to dwell on the negative at all—especially negative blogs and social media about how hard everything is!) Writing becomes more and more fun over time as you get used to it. It is now my favorite part of my job, by far. If possible, write each day on one project only to allow strong focus and to meet a specific goal. You can rotate through different projects (e.g., manuscripts, grant applications, etc.) during the week by choosing different days for different projects, but don't focus on too many projects at once. One to two is enough for a given week. Keep a queue after that. If you focus on too many manuscripts/grants at once, none get finished and you get overwhelmed by partial projects and no sense of accomplishment. There are some great specific examples of how to prioritize projects in Silva's book. How did I choose two hours per day? Silva recommended it and I've stuck to it ever since (I read the book in my fourth year of grad. school).

Nevertheless, two hours can be a long time to concentrate. I've been adopting the "writing rocks" technique by Kerry Ann Rockquemore the last few years, which I really like. The idea is simple. You break your writing session into "pebbles, rocks, and boulders" as you feel like it. A pebble is 15 minutes of writing, which allows you a five-minute break; a rock is 30 minutes of writing, which allows a 10-minute break; a boulder is 45 minutes of writing, yielding a 15-minute break. You might start a writing session with a pebble or two and work your way to a longer stone as you get more into a deeper-concentration mood. Set a timer and start writing. Stopping is important too. Stopping for breaks; stopping for the day. You need to pause to recharge yourself to keep the creativity alive and to cultivate patience. Importantly, you must create a writing space where you won't be distracted during this time. Don't check email or

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Slack, etc. Turn off all notifications and silence your phone during writing time. This relates to allowing yourself time to think. Check out Cal Newport's book, *Deep Work,* if you need further justifications and ideas for guarding your creative work time.

(On a side note, while we're talking about personal advice books, I want to mention the idea of "productivity hacks." There are endless work hacks and tricks you will encounter and have recommended to you, but as a colleague and friend, Prof. Carolin Frank, puts it, "I've found a lot of that advice oppressive and unhelpful because it's provided fuel for my tendency to feel bad about myself and beat myself up." Carolin recommends the book, "*Four Thousand Weeks: Time Management for Mortals,*" by Oliver Burkeman, for antidotes to life hack mania.)

But what counts as writing? This can be surprising. *The answer is anything that moves a manuscript down the track to submission*: reading a paper you are wanting to cite in the discussion; analyzing data (but be careful of the temptation to never stop analyzing); reading a paper about how to best analyze the data; writing a journal editor to inquire about the suitability of your manuscript for that journal; formatting the references; downloading a critical piece of software or package that will allow you to do that last critical analysis that is holding you from finishing the results section; writing a collaborator for help; and yes, actually writing text!

Why do all these things count as writing? Because "writing" is a simplified idea for the conveyance of creative work. To me, it boils down to making decisions, that's why it's so challenging. Decisions on what sentence to write, what analysis to use, what word to choose, what paper to cite, what journal to shoot for, what questions to list in an introduction. Etc. Ultimately, it's up to you to decide what tasks count for protected writing time, but the goal is to find that deep work time to focus on getting your work to the point where it is submitted to others for review.

Use **SMART** goals (**S**pecific, **M**easurable, **A**ttractive, **R**ealistic, and **T**ime-Framed) during your writing time (https://advising.ucmerced.edu/resources/smart-goals)

After your writing session, pat yourself on the back; you've completed the best thing you can do for your career and as a scientist today. Now the rest of the day is for all the other business, including creating those data that answer those burning questions.

> You never change things by fighting the existing reality. To change something, build a new model that makes the existing model obsolete. – R. Buckminster Fuller

Give plenty of notice to reviewers and letter writers—Two-Week Rule

We need feedback on our proposals and manuscripts, and related to the idea that people come first, we need letters of recommendation. You should give at least two weeks' notice on letters of recommendation or review requests, or more if you can manage it. Also, for proposals (e.g., fellowships, grants, etc.), you should be aiming to get feedback **at least** two weeks before the proposal deadline so that you have time to thoughtfully incorporate feedback. Let's call this the

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"Minimum Two-Week Rule" (MTWR—like Monday, Tuesday, Wednesday, Thursday! Party on Friday!) and I would apply it universally. Here's why.

If you're rushing your requests and proposals, not only are you making poorer drafts than you should, but you also risk getting poorer feedback and poorer letters. For example, every week I schedule known tasks and deadlines I have for the upcoming week, including letter deadlines. (There is always more to do than I can fit in, so I often have to use some triage on seemingly critical tasks.) If I get a letter request or proposal request on a Monday, to be acted on that same week, it means I have to make triage again on things that are already vital. Sometimes that means pushing into nights and weekends to get the writing done (see section on life balance below). (Imagine an exasperated look and sigh from me.) As a policy, I prefer not to work nights and weekends, and my family demands that I don't do that regularly. Would you really want your letters written and proposal feedback made in this fashion? Of course not. Apply the MTWR to all reviewers, especially ones who you don't know as well as your advisor. Also, tell your reviewers/letter writers what day you need feedback by so they can create a deadline. If you make it a loose or undefined deadline (e.g., "whenever you can get to it") you will lose out when your reviewer is playing the triage game with known deadlines. Plan ahead so you are not making things easy for your competition. The winners of grants and fellowships have well-considered and well-planned drafts, having benefited from feedback from reviewers. But how do you do this?

<u>Make a writing queue and draft your work early</u>

Maintain a writing queue and you hold regular writing sessions [talk to me and read "How to Write a Lot," by Silva, if you have any questions about how to make a writing queue and how to prioritize your writing tasks]. Suppose you see a fellowship opportunity on the horizon and applications are due May 1st. Whether or not you're sure you'll apply, you should notify your letter writers of the due date straight away so they can update their calendars and let them know that you'll be sending a proposal draft for their review (with at least two weeks for them to give feedback.) Thus, you should send them a draft to review no later than April 1st. Why? Because you'll be giving them at least two weeks to review it and you want at least two weeks to incorporate their edits before the deadline. You might be amazed at how less stressful grant writing becomes if you approach it gradually and use planning like this. If you can do better than two weeks, by all means do. Submitting a polished, reviewed proposal days before a deadline is what big grant winners do regularly. It's not brilliance; it's organization, discipline, and planning. Organization is brilliant.

> Winners are simply willing to do what losers won't. –Million Dollar Baby

<u>Prioritize grant writing; this earns you freedom</u>

Regarding grants, prioritize writing them. At first, no grant is too small! You write a few pages and someone gives you a few hundred bucks, or much more. What a deal! These won grants look **great** when listed on your CV, and once you get your first grant, even a tiny one, congratulations! You are officially a successful grant writer. You will get mostly rejections—

consider a 30% funding rate of proposals very high—but you will get invaluable practice and deep-thinking time about your work along the way.

Lastly, I want you to apply to as many opportunities as possible. I am happy to write many letters for you. It's okay to have an occasional emergency when you just spotted an opportunity that might work for you, but it's due in two days. Thus, never avoid asking me for an important letter or for feedback! I do build in some time buffering in the week for the unforeseen. However, do not let short notice become the norm--it will definitely hurt your chances for success. I also acknowledge that all of you often do write in a very proactive, planned manner. Well done! This is just a reminder to keep that MTWR rule in mind.

As of this writing, Marissa Baskett still has a fantastic website on grant and job resources for students and postdocs (http://www.des.ucdavis.edu/faculty/baskett/links/academia.html). The more you try, the more you'll get, the more research freedom you'll get.

On rejection

Get used to it. Get numb to it. OK, who am I kidding? It hurts! We're not programmed well for rejection. If you apply to a lot of grants and submit a lot of papers, you're going to get more rejections—but the good news is you'll also get more acceptances! It's true, there are data on this. Here's a paper in which researchers showed that the more people publish, the more they get rejected:

Cassey, P., and T. M. Blackburn. 2003. Publication rejection among ecologists. Trends in Ecology & Evolution 18:375–376.

Thus, if you're going to be a successful writer you must brace for rejections. Still, what to do about those rejections? Give yourself some time to grieve and then get back on the horse. For a big rejection, I'll give myself three days to grieve and then I'll saddle up again. I love the analogy of getting bucked off a horse. That's why I keep an image of a rodeo rider in my office. When I get a rejection email and see the rider it reminds me that "this too shall pass." Let 'er buck!

YOUR DISSERTATION OR THESIS AND THE QUESTION

Your goal, especially early on in grad. school, is to get a handle on your great motivation: "the big question." This question will likely end up being the title of your dissertation, and your chapters will be at least three approaches that address this main question. (One view is that grad. students should only get a PhD because there is some burning question they want to solve; as opposed to a lifestyle choice. I was somewhere in between. I decided to get a PhD because I wanted to do research for a living and I had some questions that really interested me.) You want people to form an image of you, or multiple images, but they should fall under big themes: e.g., restoration ecology, plant adaptation, microbial ecology, etc. These are the types of themes that university hiring committees form job positions around and sometimes these themes are very

interdisciplinary—which seems like a strength these days and something hiring committees will continue to look for. For example, look at the most recent faculty job adds for examples of this. Keep scanning potential job ads of interest to get an idea of what employers are looking for.

You've got to think big with your publications and get the most out of every pub. That is to say, do the most with every publication, because each one takes a long time to produce, especially early on when you're learning how to write scientific papers. Thus, don't waste much time on small stuff. Go for the big stuff early on. Don't worry, you can do it! For example, don't spend a lot of time writing papers about biological notes when you can test a major theory or propose an interesting hypothesis or review a topic many people will want to learn more about. I had a mentor tell me that 95% of papers are junk, so your goal might be to produce studies that are in that upper 5%. This is obviously subjective, but in your chosen field, which papers have meant the most to you, or influenced you, or challenged you? Strive to write papers like that. That's just a heads-up about how people may think about quality versus quantity. It's okay to do a training paper or two early on, but after that, go for the gold. If you're publishing strong papers regularly already, sure, publish other short notes too, as you wish. Just know that time is limited and hiring committees look at quality of publications first and quantity second. Also, if you have side projects or collaborations, that is terrific, but you must hold your dissertation chapters as the first priority.

ON SUCCESS IN GRAD SCHOOL AND BEYOND, AND LIFE BALANCE

The rest of this piece is a catch-all bin of advice by brief category, and in no particular order. As I was preparing to enter grad. school for my PhD I read the following book: *Graduate Research. A Guide for Students in the Sciences*, by Robert Smith. It was very helpful for orienting to the grad. school process and I highly recommend it. As I was beginning as a faculty member, a colleague gave me this book to read: *Advice for New Faculty Members*, by Robert Boice. I found this book to be very helpful, even if a bit foggy to read. However, it has many a good tip, much of it about patience: for teaching, research, writing, and service. If you want a glimpse of what faculty jobs may be like, and what can determine success in these jobs, I suggest reading this book. Some of the advice I list here also comes from the Faculty Success Program (FSP), begun by Kerry Ann Rockquemore. The basics of the FSP mainly revolve around managing creative time at various scales: creating strategic plans for semester/quarters/summers; weekly planning and organization; daily writing time. If you have any specific questions about organizing time I am happy to give suggestions, and I also find that individuals must ultimately choose a system that works for them. I do not believe that one size fits all.

<u>Those future jobs</u>

Your ultimate job target may change over time (e.g., professor, agency scientist, director, policy scientist), but start training for your job target now and let your research interests guide you. Visualize yourself as the job search target and update your actions accordingly. Ask yourself, what are your career goals? If they change, that's fine. Keep asking yourself. Attend job talks and seminars of candidates to see what it takes to be successful. (Can you be like that person in 3-8 years? Yes!) Create a list of role models who you personally know and do not know. If you

do not know them, introduce yourself to them and seek their advice about how to get to where you want to go and seek their insights as to their own progression. What did it take for them to get where they are? What inspired them? What made the difference? In time, individuals such as these may form your "mentor map," a group of folks you can call upon for advice and a variety of needs. They form an important part of your professional network. Some of the people you approach may not respond or may respond negatively. Don't take it personally and keep moving. Be prepared to hear "no" and enjoy the yesses.

Work-life balance

I don't work evenings or weekends, and if I do it's because I'm feeling inspired or under the gun (e.g. grant deadlines, field trips or experiments, travel to meetings). In any case, don't count on getting replies from me on nights and over the weekend. Please always contact me for emergencies though!

The best article I have read on work-life balance pertaining to academia comes from Radhika Nagpal: The Awesomest 7-year Postdoc or: How I learned to Stop Worrying and Love the Tenure-Track Faculty Life.

In this article, Radhika explains how she started a tenure-track job at Harvard, and as a parent also married to a very busy spouse, and how she decided early on that she was going to adopt a healthy work-life balance:

- "I decided that this is a 7-year postdoc.
- I stopped taking advice.
- I created a "feelgood" email folder.
- I work fixed hours and in fixed amounts.
- I try to be the best "whole" person I can.
- I found real friends.
- I have fun "now"."

I think such advice can and should be universally applied. If you are inspired and want to work long hours without much break, fine. Do that as you wish and especially if it makes you happy and fulfills you. However, there is another way. Besides, lots of research is now showing that taking breaks in the evening and on weekends actually makes people more productive. One of life's graces!

On crises and balance—one wave at a time

Many years ago, I read the book *Tom Brown's Field Guide to Wilderness Survival*. In the opening chapter, he described a crisis in which a friend of his become caught in a storm while sea kayaking in Alaska. The kayaker looked out across the horizon and saw endless, threatening waves in every direction. Their heart sank. But they decided to be present and focus on just the current wave they were faced with. In this way, they managed every wave they encountered and were able to eventually paddle to safety. I love this story. It calms my mind when I think of all of

tasks I need to do, and which seem all too impossible taken as a set. Luckily, we don't have to paddle through all our waves at once, but some days will feel like a storm. Be in the moment, concentrate on the one task you're doing now, and organize your tasks so that you can get to safety in the shortest course. I keep a picture on my office wall of the painting, *Great Wave off Kanagawa* as a reminder of this lesson.

On sleep

Get plenty of it. You cannot and should not cut corners on sleep. The science is clear on this. Most people need between 7-9 hours per day. Maybe you're one of the lucky ones who need less. I need eight hours and I am a crabby baby if I don't get it. I really try to get it. I take naps if I cannot get a full night of sleep. (I take naps if I just have time to take naps.) The science on naps says to try and keep them under 30 minutes to get the most out of them. In a pinch, I'll take a 5-15-minute power nap if I'm feeling low. You can train yourself to nap for short periods and it can be a big help.

Emotional intelligence

I'm not sure if I suddenly started hearing and registering the term, "emotional intelligence," or if people are just using it more these days, but it's a thing to be aware of. I do wonder if it's becoming sort of a code for when someone treats you well (i.e., they have high emotional intelligence) or vice versa. In any case, I believe that lessons learned in the above books are all relevant to increasing your emotional intelligence. Miriam Barlow, Professor at UC Merced, forwarded some video links when she was Chair of the QSB Grad. that are worth checking out:

The first is an 8-minute YouTube video about communication:

https://www.youtube.com/watch?v=F0A-cIZBKQ4&fbclid=IwAR0wWacnMYO3mJxwjk9ito3rXJsGpqq2NBeioGwQVp_gaKbG8a66oqJ8Bgg

The second is about emotional intelligence and is information-dense and brief:

[*13 Signs of High Emotional Intelligence*, by Justin Bariso]
https://www.inc.com/justin-bariso/13-things-emotionally-intelligent-people-do.html

At the end of this article by Bariso is a one-minute video that gives some neat tips for checking yourself from saying too much during an emotional conversation. Bariso says,

"There are three things you must always ask yourself before you say anything.

- Does this need to be said?
- Does this need to be said by me?
- Does this need to be said by me now?"

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The only risk I see to this strategy is that you may never say anything at all during tough conversations. When in doubt, and when they're true, I find "I'm sorry," "I understand," and "Please let me know how I can help" to be safe things to utter.

On conflict and irritation

Regarding conflicts that can and do arise, I know that we all want to be friends and care for each other. Even so, in all working groups (and families!) conflicts happen. Things get stressful, resources and time are limited, and tensions arise. In my opinion, conflicts often arise when people are not feeling heard or respected. The fastest fix is thus to get to a point where everyone feels heard and respected.

Here are some guidelines for avoiding conflicts in lab:

1) Please **be respectful of the needs of others** as you plan the use of shared resources (e.g., growth chambers, GPS units, scales, molecular equipment). This means planning ahead, communicating your needs, and following procedures (e.g., using equipment sign-out sheets).
2) Please **express your needs clearly and very specifically to others** through good communication and coordination. When misunderstandings arise, sometimes damage is done, in terms of resources (e.g., experiment damage), time wasted or lost, and feelings hurt.
3) Please **let others know that you hear them and restate the needs they are expressing.** I took a college course in Communication ages ago and the professor drilled it in to us that communication is complete only when these three steps are achieved: 1) message sent; 2) message received; 3) sender of original message notified that message was received. Number 3 often does not get carried out and misunderstandings can easily arise.
4) Please, **when in doubt, speak up. When someone is stressed or agitated, just listen.** Making your needs known often and listening to others when they have a clear need is crucial. If you're not feeling heard, politely restate or remind others of your needs. If someone is restating their needs to you, even if they seem testy or stressed, just listen and when they're finished let them know that you hear them and understand.
5) **Tell me when problems arise and I will help.** Don't be shy to tell me about problems or challenges, even interpersonal challenges, if they don't seem to be getting resolved. **It's my job to help with any challenge or problem arising in the lab.**

On advocating for diversity, equity, and inclusion (DEI)

I won't say much about DEI because it is now becoming a topic that is more and more built into graduate school curricula and professional trainings, except to say that it is critical that you engage it as part of your profession and skill set in science. This means building a regular practice upping your DEI game and documenting your knowledge and skills in this area. If you follow a career in science and/or academia you will 100% be asked about how you contribute towards DEI at all levels of professional engagement. You will be asked during interviews. You will have to craft statements as part of job applications. You will be asked to summarize your

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DEI activities during job merit reviews. If you don't feel you're getting enough training in DEI skills and service, ask for more. In my lab, we now include regular DEI exercises, study, and discussions. One last point for now on this: if you self-identify as a member of a group underrepresented in science it is important that you view your professional success as the number one thing you can contribute to DEI. I.e., make your profession more diverse by doing the things that will increase your professional success. Individuals who are identified as underrepresented (e.g., women of color) are often overburdened by requests of service on DEI issues, such as requests to be on committees, give feedback on behalf of underrepresented groups, etc. It is fine to say "I'm sorry, I cannot" often in order to invest more time into your professional success.

On perseverance

It's perspiration mostly (inspiration is necessary too, of course); it's not being brilliant, it's being persistent. "Keep swimming" (Nemo) but what is swimming? Well, have you written today? The successful (read as employed) scientists are the ones who have kept at it. I don't want to push you into science if you don't want to be a scientist, but scientific training is what we do, so I'm giving advice on staying the course in science. Winton Marsalis has a quote about surviving in the music business (which is much tougher to make a living at than the science business, IMO): "if you got something to fall back on, you're gonna fall back." Of course, shit happens, and when it does, the strong network you develop (people come first) can help you navigate tough times.

Managing email and social media

The challenge is to stick to necessary emails only. Writing emails sparks more emails. Avoid this positive feedback loop that will keep you emailing, but not doing what is most important: writing your science. To deal with the email onslaught I start each workday by setting a timer and addressing the oldest unread emails in my "important" email filter (I use Gmail). At the end of the day, I set another timer to address new, important emails that have cropped up today. I always get behind, so I put in blocks of time for email catch ups, but this is a lower priority to be honest. I have a job; you need to get a future job. In my experience, hiring committees will not ask you about how good you are at email, nor about social media or your Twitter account. They mostly won't look at that stuff. If it's a research job, they'll go straight to your papers and grants when evaluating your CV. It it's a teaching-first job, they'll go straight to your teaching experience.

Websites

You need your own website before going on the job market. Start one and keep it updated. Ask me if you have any doubts about how to do this and what your website should look like. However, first, go look for examples that excite you on the web.

Getting help and checking in

You need to ask for help. Everyone needs it! For example, imposter syndrome is innate in most if not all of us. Be vulnerable; ask others for help and advice.

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We have weekly 1:1 meetings so that you can ask for help and advice. I start to get nervous if I see no progress from a student/mentee over a three-week period. This signals that something might be stuck, but that's okay. Ask for help. For project or weekly meetings, I will typically ask folx these questions in so many ways:

What can you report on for the past week?
What are your goals for the following week?
What problems have you run into? What potential solutions do you propose and what course do you wish to pursue?
How can I help?

Answering these questions for yourself ahead of time is a good way for you to think about what you might need help or advice about. It isn't always obvious.

On teaching

I won't say much here about upping your teaching game, just that during your PhD experience you should strive to do the minimum amount of teaching required by your program because teaching takes a lot of time. Teaching well is important; and it may be a primary passion of yours. Great! You should certainly train and practice your pedagogy during TA semesters, and certainly if you are teaching as an instructor of record, but the goal of your PhD is to master the research process. If your research relates to pedagogy or teaching in general, then your teaching and research may intersect. Otherwise, apply to fellowships and write grants to free your time for more research, including pedagogical research if that's your thing. "*Small Teaching*," by James Lang, is an accessible and realistic guide for making simple and effective changes in teaching practices for every experience and time commitment level.

On skills and training

Keep learning new ones. Determine what skills you need to learn and make a training plan to sharpen those. Ask for help on how to make this plan. However, don't take classes unnecessarily. As a grad. student you must take a set number of courses. Only take additional courses/trainings/workshops if they will teach you something vital to your research and if taking the course will accomplish this faster or better than you can it by yourself.

Travel to meetings

You need to travel and go to meetings. You need to give talks and posters, meet new people outside of your institution and get wider exposure to the culture of science. We've been in COVID-19 times, so this is moot at the moment, but normally I try funding one trip a year for each presenting member of lab who doesn't have travel funding of their own. You should try applying for travel funding though; it's grant writing and it's good practice.

On interviewing

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Here are just a few basic tips I have gathered in preparing for in-person interviews. (I'm still crap at phone/zoom interviews, so please send me some advice.)

- Mainly work on preparing and polishing the presentation(s) or job talk(s). Of course, there are lots of aspects you're preparing, but nail the talk to your satisfaction and the rest falls into place from a confident performance.
- Regarding one-on-one meetings, follow the rule that people's attitude about you develops from their perceived measure of your attitude about them. That is to say, make them like you by showing interest in them. Ask them a lot about themselves, their lab, their research, what excites them. People love talking about themselves and want colleagues who they imagine want to work with them.
- Schedule an extra hour of sleep on the nights before your interview days. This not only forces you to relax but restores your brain.
- Power pose. This is maybe hokey, and recent research has made it controversial, but what can two minutes cost you? At the very least it's a nice break/stretch and probably serves as meditation. Do the preparatory power pose as needed. Here's the Ted Talk on it: https://www.ted.com/talks/amy_cuddy_your_body_language_shapes_who_you_are

SOS: in times of stress

There will be those times when you just feel like shit and you cannot get out of it. I call those SOS moments. I have my own SOS file that I keep little sayings, truths, quotes, and advice in. When I feel a bit lost, I pull up the SOS file and this can help me get out of it or send me in a better direction. These can be very personal and specific lists of advice, so I won't go into detail about mine. (It's always good to make sure you're being kind to yourself; remember this meditation.) However, there are some commonalities for raising your mood quickly. On a quick internet search, I found this article as an example with very general advice:

More advice

John Thompson's grad school advice: https://thompsonlab.sites.ucsc.edu/lab-members-and-visitors/how-to-be-a-successful-graduate-student-jn-thompson/ (Highly recommended. I found this very helpful, if frightening, advice as a grad. student.)

Bob Sutton's list of 15 things:
https://www.linkedin.com/pulse/13-things-i-believe-bob-sutton/

Other quotes I love

> Do not burn yourselves out. Be as I am—a reluctant enthusiast...a part-time crusader, a half-hearted fanatic. Save the other half of yourselves and your lives for pleasure and adventure. – Edward Abbey

> Nature does not hurry, yet everything is accomplished. – Lao Tzu

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Besides the noble art of getting things done, there is the noble art of leaving things undone. The wisdom of life consists in the elimination of non-essentials. – Lin Yutang

All great things are happening in slow and inconspicuous ways. – Leo Tolstoy

Here again we are reminded that in nature nothing exists alone. – Rachel Carson

The tortoise wins the race. – Mother Goose