McDermott Lab Policies – Last Updated November 12 2022

Please email me (jhm@mit.edu) with suggestions or comments for how to improve this document.

Life In the Lab

Diversity
I am committed to fostering a diverse, respectful and caring lab culture, inclusive of all students, postdocs and staff regardless of their background, gender, sexual orientation, race or beliefs. Labs are better when they are diverse.

Work Hours
I do not require that people be in the lab at particular times during the day, apart from mandatory lab events like lab meetings. There is variation in our natural circadian rhythms, and it is fine to work when you are most productive. Lab events will be scheduled between 8am and 6pm EST. I will try to avoid scheduling things early.

I also do not expect people to work a criterion number of hours, whether in or out of the lab. There are benefits to being "around", but it is much more important to make good use of your time than to maximize the number of hours you are working. Every professor has witnessed grad students who are in the department for many hours every day of the week but who get very little done, along with those who are here on a more delimited schedule but who are highly effective.

It is also wise to be sensitive to signs of burnout, and to take steps to avoid it. We are more effective, and happier, when we preserve time for self-care, family, friends, and outside interests.

On the other hand, we are lucky to be in an amazing environment for science, and we should make the most of it. Bottom line: work hard, but also work smart and efficiently.

Working Remotely
I am in general willing to have people work some of the time from other locations (I do it myself pretty extensively). I just ask that you clear your absences with me ahead of time. And if you are working remotely, you are still expected to attend mandatory lab events like lab meetings. For the time being all lab events are accessible via Zoom.

Weekly One-on-One Meetings
I meet weekly with all grad students and postdocs in the lab. These meetings are most productive when you come prepared. A slide deck that can be walked through is ideal. Results graphs, key demos – anything that will help us discuss the week's progress is good to have prepped in advance. Get in the habit of having results graphs properly formatted. One good habit is to have your plotting scripts set with good defaults for font sizes, and to make sure that different graphs that we may want to compare have the same axis limits, and that graphs plotting the same quantity on both axes have a square aspect ratio. Another good habit is to begin the meeting by reminding us both of where we left things the previous meeting. Another good habit is to then give me your big picture assessment of where the week's work leaves

things before you dive into the details.

I ask that each person maintain a document with a record of the content of our meetings, and to send me a brief email summary of our meeting taken from this document after we have it. This summary should include the main points we discussed, and conclusions from the discussions, and the plan for the coming week. This serves to consolidate what we discussed in memory, to ensure that we are on the same page, and to give us something we can refer to during the week as we move forward with action items. I read these meeting summaries without fail, and usually respond with comments. If you ask me to do something during our weekly meetings (or any other time), and I say yes, please either make sure I have written it down on my to-do list, or include it in the email summary to make sure I do it (preferably both).

If you are going to be away and will not be able to make our weekly meeting, I ask that you email me ahead of time to let me know so that I can clear the space on my calendar. Please do this in addition to putting your absence on the lab calendar.

Lab Notebooks
Everyone should keep an organized record of the progression of each of their research projects. This can be an actual physical notebook in which you paste results graphs etc., or an electronic document. Popular options in the lab include Evernote and Google Docs. I will pay for an Evernote subscription if you want to use it for this purpose. But you have to do something, and keep it curated in a way that will be intelligible when you look back at it later on. Graphs should have axes labeled, and have correct titles etc. etc. These notebooks can also form the basis of our weekly meetings. Sometimes I will ask to see your lab notebook to remind myself of past results.

Annual Check-in Meetings
About once a year I schedule a one-on-one meeting to address the big picture of your time in the lab. These are a chance for us to discuss how things are going and what we can do to make things better. I will send out questions in advance of this that you should prepare answers to, and these form the basis of the conversation. Your feedback is a gift to me to help me do things better, and I cannot stress enough how much I value your honest opinions. It is very acceptable and encouraged to give me constructive criticism, and I will do my best to implement suggestions that I get from you. I also generally give a lab presentation after these meetings to summarize the feedback I got (my hope is that this increases transparency and conveys to all of you that I am serious about incorporating your feedback). I will in turn try to help you identify areas for improvement as well as strengths that should be reinforced.

Communication via Email and Phone
When emailing, please try to use informative subject headers and not append new topics onto existing threads about other topics. Put separate topics into distinct emails to help keep things straight. We often need to look back through email to find information, and having threads that are organized and informatively labeled is a big help.

I expect everyone to reply to email within 24 hours during the work week – I will try to do the same. Sooner is better. If I am emailing about a scheduling issue I appreciate prompt responses.

I have young children and so sometimes work at odd hours. If I email at odd hours I do not

expect an immediate response – it is fine to wait until your normal working hours if you prefer.

These email guidelines should also apply to inter-lab communications. If you are collaborating with someone please respond promptly to email, but also be sensitive to the fact that people do not work 24-7. It is a good idea to make people you work with aware of your communication preferences, and to respect those preferences when articulated.

Talking on the phone is often more efficient than emailing. It is fine to call me before 10pm for this or any other purpose. My number is xxx-xxx-xxxx. If it is not a good time I will not pick up (so don't worry about disturbing me), but it is fine to try. If urgent, send a text.

Use common sense to make sure you are reachable leading up to deadlines, either by being on email/Skype/Zoom etc., or by making sure I have your phone number, and having your phone on.

Lab Events
I expect everyone to attend all lab events: lab meetings, and department presentations by lab members (talks and thesis defenses). These are important chances to learn, and to give feedback, and to support your peers. Please let me know in advance if you won't be able to make one of these events.

Lab Meetings
You will get as much out of lab meetings as you put into them. Don't be afraid to ask basic questions – you will not be the only one wondering about something, and everyone (me included) appreciates it when others ask about something that is unclear to them. It is also very useful for the presenter to get cues that they are going too fast or assuming too much background knowledge on the part of their audience. Our goal is to have every lab member contribute to every lab meeting in some way, typically by asking a question or making a comment.

We ask that each lab member make the lab meeting their primary focus during the lab meeting (rather than working in parallel on something else). And if we are meeting virtually, please keep your video on if possible to help whoever is presenting sense your engagement.

As a lab we are committed to holding meetings that are inclusive. This means we want everyone to enjoy the meetings and to be comfortable participating and sharing their opinions. Lab meetings involve intellectual discussions, and these usually involve differences of opinion that are opportunities for us all to learn and refine our ideas. For people presenting, the lab meeting is also an opportunity to get constructive feedback that can help us strengthen the eventual scientific product we are working towards. But it is critically important that each of us expresses differences of opinion in a way that is kind and respectful. We always aim to disagree without being disagreeable.

Here are some guidelines that came out of a lab discussion we had on how to foster inclusivity in meetings:

1. We acknowledge as a group that we value learning. Questions, mistakes, confusions etc. are part of the learning process, and as a group we strive for an environment where these are normalized and expected as routine.

2. Critique the work, not the person.

3. Think about how you speak.

'I' language is a good default when possible ('I found this confusing', not 'This was confusing').

Note that 'Why' questions can be perceived as confrontational - ex: 'Why did you run these conditions?' vs. 'What variables were you trying to control for when choosing these conditions?'.

Avoid language that implies that everyone should know something, e.g. "obviously" or "as you all know" or "I'm sure everybody understands that..."

4. Be wary of the fact that you may be wrong about things. Humility serves us all well.

5. Elevate and acknowledge the contributions of others - don't talk over/past others.

6. Assume best intentions.

7. If you are presenting, pause from time to time for questions, and show appreciation for questions - giving the reason for the appreciation can be helpful. Be welcoming and appreciative of basic questions. These are cues that you are assuming too much on the part of your audience. It is your prerogative as a speaker to decide that you would prefer to not be interrupted with questions, but if you adopt that route you should pause regularly to give people a window in which to ask questions.

Being able to express differences of opinion, skepticism etc. in a way that leaves the person you are interacting with feeling good is a highly valuable skill. Skill in this domain will improve any community you are part of and make you a sought-after colleague, so it is well worth attention and practice.

If you feel that an interaction in a lab meeting was inconsistent with our goals of inclusivity, please bring it to my attention and I will try to make some course corrections to improve things going forward.

Impostor Syndrome
When working at MIT we are surrounded by people who are good at what they do and who seem to know a lot about everything. In such an environment it is natural to feel very aware of all the things we don't understand as well as we would like, and to sometimes feel like we are lagging behind our peers, or that we are unqualified for our position in some way. This is a very common illusion that is part of the human condition and that we must learn to overcome.

One strategy that may be helpful is to consciously try to use the achievements and expertise of your peers as inspiration (rather than allow them to become a source of intimidation). What others around you do provides examples of what you might do. A second and related strategy is to treat your peers as resources that you can leverage. If you meet someone who seems to know a lot of things that you don't, ask them for coffee and find out more about their area of expertise. They will very likely be excited to tell you about it. And keep reminding yourself that everyone, regardless of their career stage, has major gaps in their knowledge, and that being a scientist involves a perpetual state of learning.

Part of your advisor's job is to help you keep your confidence calibrated appropriately. I try to remember to mention all the things that you do well during our weekly meetings, but as an advisor it is easy to fall into the trap of overemphasizing things that could be improved at the expense of things that you already do well, which can exacerbate the illusion of inadequacy. If you are feeling underconfident please talk to me about it and I will recalibrate my feedback to place more emphasis on reminding you of your many successes, strengths and areas of expertise.

Helping

Try to help each other. We all benefit from each other, and the small bits of time it takes to help someone else in the lab will collectively pay off, both in facilitating science, in stimulating interactions that ultimately benefit science, and in building relationships that will last long after you leave the lab. These relationships are one of the most valuable things about spending time at MIT, and I encourage you to build and nurture them.

Rotation Students

We love having rotation students. If you are a rotation student, please do not be shy about reaching out to lab members for advice. Lab members repeatedly tell me that they enjoy the interactions that result. These interactions are also a good way to get to know the lab.

Conflict

My general advice is that it is never worth it to have a conflict in the lab. Very few issues are worth the bad feelings that result. When in doubt, extend the olive branch.

If you are having interactions that are upsetting or off-putting in some way, please tell me about it and I will help to mediate or otherwise address the issue. Everyone should feel welcome and enjoy being in the lab. I have zero tolerance for harassment of any form.

Competition

We always avoid competition within our lab, and with other labs in our department, and ideally with labs elsewhere. It is my job to help each person in the lab develop their own area of research, and to make sure that no one feels they are being encroached on. If you are ever worried about this, talk to me and I will address it.

Desks/Offices

Everyone who works full-time in the lab is entitled to a desk in some sort of office. These will be rotated periodically to help ensure equitable assignment of locations. If you are not happy with the current arrangement let me know and I will try to address it.

If your work setup is ergonomically suboptimal, let me know and I will try to rectify. Pay attention to your body. If you are uncomfortable we'll do something about it. I have a lot of experience with repetitive stress injuries, and am eager to share what I learned from this if it is helpful to you.

In my experience one of the main sources of frictions in the workplace is that preferences for working conditions can vary pretty dramatically from person to person. Some of us cannot function when other people are talking in the background, whereas others have no problem blocking it out. Please try to be cognizant of this and don't assume that just because you would not be bothered by something that others won't either.

Our general rule is that conversations or other noisy work that are longer than a minute should be moved to the main room.

Administrative Staff
Please treat administrators and support staff with the same respect that you afford me. Respond promptly to their emails and be courteous.

Keys
We supply keys to anyone working in the lab. I have a stash of keys for UROPs. If you are a staff member, grad student, or postdoc you can request keys issued in your name. Elmer Canfield can sort this out for you. Please try to return them when you leave.

Laptops
Part of my job is to make sure you have the resources you need to do your work. A laptop is an essential part of this. If you do not have a laptop, or if the one you have is on its last legs, or not powerful enough to support your research, I will supply you with a laptop you can use. Don't be shy about asking about this.

Hygiene in the Lab
Please clean up after yourself. A good rule of thumb is to leave a place cleaner than you found it. Empty the tray to the espresso machine before it fills up so that it does not overflow. Try not to leave your stuff lying around in common spaces. Etc. etc.

Food
We often have food catered for lab meetings. Whoever ordered the food is responsible for making sure leftovers are disposed of before they leave for the day, and that the main table in our shared lab space is clean.

Please try to keep track of what food you have in the lab refrigerator and try not to let things go bad.

I supply snacks for lab members. They are in the file cabinet near the espresso machine. Feel free to consume them as needed. They will be replenished once they are used up. There is always a lab member who is in charge of ordering snacks. Let them know if you have a craving for something in particular.

Espresso
I supply an espresso machine and coffee beans for lab members and experimental participants. We have a cleaning schedule that those who use the machine are part of. Keep it clean and well maintained. If you are new to the lab, please consult Andrew Francl for instructions on how to clean and maintain the machine. We have a monthly subscription for coffee beans that were deemed acceptable by some of the lab's discriminating coffee drinkers circa 2019. If you want to experiment with alternatives, discuss it amongst yourselves and Elmer can order some other types.

Life Out of the Lab

Absences
Please let me know in advance when you will be away. It's very rarely an issue, but sometimes there are things going on that I need you to be present for (grant prep, visits from funders etc.). The protocol is to ask me via email or in person, then put it on the planned absences google calendar.

Vacations
Everyone is encouraged to take vacations. We are passionate about what we do, and the consequence of that is that we work hard. It is important to take time off to recharge from time to time. Take vacations, and enjoy them.

Parenthood
I encourage student parents to take advantage of the Institute's maternity and paternity leave policies. I will support you however I can.

Mental and Physical Health
Your health is important. If you are feeling unwell, take advantage of the university's health services, and take time off if you need to.

Financial Hardship
MIT has a variety of sources of support for students experiencing hardship. Here are two institute-wide resources:

https://sfs.mit.edu/graduate-students/guide/support-for-graduate-students-in-need/

https://studentlife.mit.edu/arm

The BCS department also has the ability to provide financial assistance. This can be accessed through the BCS academic administrator.

Harvard also has resources:

https://gsas.harvard.edu/financial-aid/hardship-funding

https://harvardgradunion.org/emergency-grant-fund/

Research Practices

Experiments
Anytime you run an experiment, make sure to save all the stimulus parameters for each trial, such that the experiment can be reproduced EXACTLY. In other words, if you are presenting a bunch of stimulus exemplars from a condition in random order, you need to record which exemplar is presented on each trial, even if you think you will not use this information. It is common to end up wanting to do an analysis that requires details that you were not initially planning to analyze. Saving detailed stimulus parameters will save you a lot of grief down the

line. I can give you painful examples where not doing this has come back to haunt us. Similarly, make sure to save all the relevant information to recreate computational experiments (e.g. random seeds).

Human Subjects Training

Everyone who is running experiments on human subjects must complete a training course, along with periodic refreshers. Links to these courses can be found on the COUHES website: https://couhes.mit.edu/education-and-training/training-research-involving-human-subjects

Consent Forms

Every participant who comes into the lab fills out a consent form. Each experimenter has a folder in the filing cabinet in the sound booth room where these can be kept. They should not be left lying around. If we are running out of room, let me know.

Experiment Participant Records

We are required to report the number of participants run under each experiment protocol each year, and to report aggregate participant demography to our federal funding agencies every year. Each of you should be keeping a protected document with this information, so that when it is time to do progress reports we can compile this information easily and accurately. For Mechanical Turk experiments, please use the demographic form developed by Malinda McPherson to collect the data required by NIH.

Equipment

If gear in the lab breaks or is not working correctly, let me know. I am not on the front lines, and so don't have much way of finding out about malfunctions if you don't tell me. It is important for me to know if anything is not working, both to help get it fixed and to monitor whether it could be affecting our experiments in some way. So even if you have a plan to fix something, please apprise me of it. Barring the unusual, I will not be mad if you break things – it's part of science.

Nothing in the sound booths should be modified without notifying me. The headphones are calibrated individually for each booth. Altering components of the signal chain can affect the validity of our measurements, so the setup should be handled carefully and never altered without notifying me first.

Sometimes people from other labs want to use our gear. This is usually OK (we should help our colleagues whenever possible), but all such requests need to go through me. Some of our equipment is expensive and could be damaged if someone doesn't know what they are doing, so we should be careful about lending it out.

We also often let people from other labs use our sound booths. If someone approaches you about this, send the person to me. Our general practice is to make sure someone from the lab walks the person through our protocols, tells them what to be careful of etc. before they start using our facilities.

Hygiene in Sound Booths

We have alcohol pads for cleaning headphones between uses. As with other lab spaces, leave the sound booths in better shape than you find them. It is important to project an air of professionalism to experiment participants, as it makes them take their job more seriously. Having the place not look like a dorm room is good practice.

Computing Resources
Nowadays most of our computing is done on the department computing cluster, OpenMind. The main limitation at the moment is disk space, which I expect will be an ongoing struggle. Try to be considerate of others, and let me know if space is getting tight. There is a dedicated disk_usage_monitor slack channel for this purpose that you should join to be alerted if usage get close to capacity.

We also have our own machine that also functions as a fileserver (stepney), and an associated virtual machine (burgess) that you can run jobs on. We also have had access to external computing resources, such as the SUMMIT cluster at Oak Ridge National Labs. I do not want computing resources to be a bottleneck, so if you need more than what we have, please let me know.

Reproducibility
We should be doing reproducible science. Here are a few steps that happen with every paper we publish to facilitate this.

1. Every paper that is published should have an associated data file, with all the data that was used to create results graphs and statistical tests. This is useful as a way to share data, increasing the impact of your work, but is also valuable as a way to force yourself to make sure you are analyzing the right data. We often use csv files for this purpose and have different files for different figures, as these can be easily sent to others.

2. You should also archive your code in a way that allows you to recreate data figures (i.e., organize data source files, folders and scripts so that figures can be regenerated). Specifically, upon submission of a paper I need to receive a script that will generate all graphs.

3. Experiment code should be archived so that each experiment can be re-run. It is good to think about this when you are doing the research itself. We should all be in the habit of organizing code to facilitate these goals.

4. Upon publication, the above three items should be combined in a single folder that will have everything needed to reproduce and/or check the results of a paper. If the data files involved are prohibitively large, this folder can instead contain instructions for how to connect the code to the data if needed.

5. Use version control when you code. GitHub is strongly recommended. Once published, code should be linked from the main lab GitHub repository.

6. Take the time to comment your code. Try to force yourself to use good coding practices – it always saves time in the long run.

Backups
Back up your laptop. You have free access to CrashPlan, which is one option for backing up your files. You must back up any files that are part of your work, preferably via multiple means. I am happy to pay for an external hard drive you can use for this purpose.

File Organization
Try to name files in a coherent way. Avoid spaces in filenames as they do not transfer well to many platforms. It is often helpful to have the date a file was created in the filename, ideally with a sortable format, e.g. by starting the filename with 2020-02-28.

Resource Sharing
Our science often involves developing code or data sets. These can be useful in other projects, but are often the product of a lot of work and ingenuity, raising the question of under what conditions they should be shared. My sense is that anything that has been used in a published piece of work should be shared freely within the lab (and arguably outside the lab too, as this is commonly a condition of publication nowadays). If code or data has not been part of a publication, it gets more complicated. In asking someone if they will share code or data it pays to be sensitive to the fact that they may feel they have invested a lot in it (even though this may not be apparent to you). Sometimes it is appropriate to offer someone to join your project as a collaborator (which in practice means having them as an author on your paper). There are no absolute guidelines here, and the best thing is probably to consult me if you think there is any chance that you are in a gray area.

Moving On
Eventually you will leave the lab for your next station in life. Many of you will have accumulated a wealth of valuable knowledge, potentially knowledge that is critical to the function of the lab. I will be grateful if you can pass this on to the rest of us before you leave, so please think about what might fall into this category and talk to me if in doubt or if unsure how to handle this.

As you are preparing to leave the lab, please plan to spend some time archiving your work. The solution for this varies depending on what needs to be archived. We have cold storage resources that can be used for this purpose, as well as a lab disk server. Please remind me to discuss this if it slips my mind.

Committee Meetings
PhD students have yearly committee meetings with a group of 3-5 faculty, including the advisor. These are an opportunity to get outside feedback on your research, and you will generally give a presentation of your work. Advice on what to do to get the most out of these meetings:
1. Try to schedule at least a 90-minute block for the meeting. One hour is usually not enough time.
2. Prepare at most 30 minutes of material. You will typically be interrupted with questions and suggestions, and so you probably won't make it through more than this.
3. Send me slides in advance to get some feedback, and practice your presentation at least once ahead of time.
4. The faculty on your committee will usually both be interested in your work and eager to help, and may have lots of questions/suggestions. To make sure the issues that are most important to you get addressed, have a slide close to the beginning of your presentation where you state the things you would most like feedback on. This can help to focus the discussion to make it maximally helpful to you.

Presenting Our Work

External Presentations
Presenting your work to other labs or departments is invaluable, both to get feedback, publicize your work, and build your reputation. Do it whenever you can. If you are invited to present your work elsewhere, I just ask that you let me know before you accept the invitation, so that we can talk about whether it is the right time, and plan the presentation. You must practice with me before presenting elsewhere, and leave enough time to make improvements if needed. I will help you give the best talk that you can. Our presentations should reflect well on the presenter and on our lab.

Learning to Give Talks
Giving talks is an acquired skill that you will improve with practice, but it may be helpful to read advice from others. There are a variety of tips and guides available in the "Practical_Advice_for_Students" folder on the lab server, including a set of slides by Ted Adelson on how to give short talks, which I recommend.

Conference Attendance
We attend conferences to present our work, and also to hear about what others are up to. If you are away at a meeting, please attend the meeting even if not every talk is exactly relevant to your interests. Use it as an opportunity to network and learn. If there is someone you want to meet and would like me to provide an introduction, let me know. I am always happy to facilitate.

Conference Presentations
I ask that you get me draft versions of conference presentations a week in advance to ensure that there is time for feedback and iteration as needed.

Anytime you present a poster or talk at a conference or other event, I ask that you send me the final version. I make use of these all the time - when telling visitors about your work, when putting together talks to publicize your work, and when preparing grant applications, among other things. I often have to prepare things without much advance notice, and when one of us may be offline, so having your latest results at my fingertips can save the day. We also deposit posters into a shared folder on the lab server (use the filename format lastname-year-conference-shortdescription.pdf) so that others have examples of posters to get inspiration from.

Please use Helvetica fonts or something similar for all figures and posters. Journals usually require Helvetica and it will save time to use it from the start.

Please always save results graphs in a vector format. This is usually the best option for publication and it will save time to use it from the start.

I ask that you jot down the interactions you have at the conference once you are done with your presentation – who you talked to and what they said – and send them to me. The feedback is usually very helpful as we fine-tune the work for publication.

Conference Reimbursements
The lab will pay for transportation, hotel, and food expenses when you attend meetings to present your work in the lab. We are spending your tax dollars, so be respectful of that - book

flights and hotels well in advance so that rates are reasonable. If you have questions about what is appropriate, ask me. To be reimbursed you need to provide your receipts to Elmer Canfield. Please do so in a timely manner.

Conference attendance can be expensive, and no one should be financially inconvenienced by having to front the money until the reimbursement is processed after the conference. It is straightforward for the lab to pay for your hotel and flight up front –Elmer Canfield can take care of this for you.

I will always pay for the first author on a conference presentation to attend the meeting. If you are not presenting as a first author but feel that attending a conference is important, ask me and I will fund it if I can.

Conference Accommodations
The normal expectation is that you will share a hotel room with someone. For conferences that many lab members attend, people sometimes self-organize and rent an apartment or house through Airbnb. However, everyone should feel safe and comfortable when attending conferences. For instance, women are not expected to share rooms with men. In such situations it is nice to try to find a roommate, but understood that sometimes that will not be possible.

Press
Occasionally a paper we publish is of interest to the press. Usually we contact the MIT press office to ask them to run a press release on the paper. This can then attract attention from journalists. I will make sure that you (the student or postdoc who led the work) are featured prominently in the press release, and in any subsequent media coverage. However, I usually take the lead in making sure the press release is up to our standards, and in making sure that we say the right things to journalists. If you are contacted by journalists, please run your responses by me first before you email anything to them. If they want to talk on the phone, ask them to send their questions in advance and we can talk about it to make sure we are on the same page.

Paper Writing

Authorship
One common guideline is for a person to be an author on a paper if they have been substantially involved in at least two of the following four activities: 1) designing or conceiving the study, 2) collecting data, 3) analyzing data, 4) writing the paper. It is often pretty clear what constitutes substantial involvement, but there are borderline cases where the PI has to make a judgment call. If you are unsure about whether you should be an author on a paper coming out of our lab, ask me and we can talk about it. In general, undergraduate RAs who help collect data are not authors on papers except in cases where they have been unusually involved (which we welcome, but are in practice not all that common).

Authorship Order
At present in our field, it is typical for the junior person who did the bulk of the work on a study to be listed first in the list of authors, and for the senior person who supervised and funded the work to be listed last. The authors in between first and last are ordered according to the extent

of involvement and seniority. Sometimes two (or more) people have contributed to similar extents, in which case there are joint first or last authors. This is increasingly common, and people generally take note of it when evaluating a CV, but someone still has to be listed first and/or last. I am responsible for resolving authorship order on papers coming out of the lab, and I will do so as fairly as I can. In cases where there might be ambiguity, feel free to raise the issue of authorship order during early stages of a project (though things can change depending on how a project involves, and some people advise against worrying much about this at the outset in order to better foster collaboration - https://www.nature.com/articles/d41586-018-06037-5). Once a paper starts to be drafted and passed around among authors, there should always be a title page with the author list to avoid misunderstandings.

Corresponding Authors
Our usual policy is that papers have two corresponding authors: the junior person who led the work and is usually first author, and the senior author (usually me).

Writing
Of the various skills required of a scientist, writing is probably the hardest one to learn. I will do everything I can to help each lab member improve in this domain, which generally requires going through many drafts. Expect me to make extensive text edits. Don't feel bad about it, but try to understand the logic behind the editing, and ask for clarification if you don't see why I did something.

Here are a few guidelines that may save time in the drafting process:

1. Begin with an outline of the story you want to tell.
   a. Assemble relevant potential bits of figures into a slide deck, but don't worry about the exact composition of figures as of yet.
   b. Sketch out the argument of the paper, generally with one idea or theme for each paragraph of the introduction, results and discussion.
   c. Most journals allow sub-headings in the Results and Discussion. These are very helpful to the reader, and to the writer. They should ideally convey the point of the section that they head. So one helpful approach is to draft these for the Results section, one for each result/conclusion you want to present.
   d. Only once you have settled on the logical flow of the paper, from the Introduction through the Results, should you assemble the figures. The composition of the figures will be dictated by the order in which you describe things in the text.
   e. A good default organization for the Discussion is to begin with a one-paragraph summary of the results and conclusions, then to have sections on Caveats and Limitations, Relation to Prior Work, and Future Directions. Sometimes also it makes sense to have sections that elaborate on the most important implications of your results. As you are thinking about the results section, discussion points will occur to you. Jot them down under one of these section headings, and then try to eventually organize them into paragraphs that are thematically coherent.

2. Spend a lot of time iteratively brainstorming and refining the title and abstract. They are the most important part of the paper. Abstracts should usually be under 150 words. As a result, they are usually challenging to write, and benefit from multiple revisions.

3. Write as concisely as possible. Removing words usually makes things clearer.

4. Use short sentences wherever possible. They reduce working memory demands on the reader.

5. Use parallel structures where possible, at the level of phrases, sentences, and paragraphs. They reduce working memory demands on your reader, and result in clearer prose.

6. Avoid abbreviations. They increase working memory demands on your reader, and are generally really annoying unless they are abbreviations that almost everyone is familiar with.

7. Use figure captions to help tell your story, e.g. by writing them as statements of results. Ideally the reader should be able to get the gist of a paper by looking through the figures. You can facilitate this by including schematics next to results graphs to make it clear what is being plotted, and by otherwise using pictures where possible to show what was done.

8. Plan figures to be on a printed page, and size the fonts accordingly. Try to use consistent fonts sizes across figures. Doing this right from the start will save time and make your figures legible during the editing process. As a default, save your figures as vector graphics so that they scale appropriately and are editable. When doing this, make sure that the fonts are editable, for instance by including specific keywords for matplotlib (http://jonathansoma.com/lede/data-studio/matplotlib/exporting-from-matplotlib-to-open-in-adobe-illustrator/).

Funding

Grant Writing
It is my responsibility to fund the lab by writing grants. Grants are usually based on your as-of-yet unpublished research, and I will occasionally ask you to make figures for this purpose. If you would like to know more about our grants, I am happy to show them to you, and to involve you in the grant writing process. It is always fine to inquire how your work is being funded.

Fellowships
Please apply for fellowships when eligible. They will help us both – by relieving financial pressure on the lab, and by providing another visible signature of your excellence. I am available to help you craft a proposal. Most grad students will apply for fellowships in their first year or two (NSF, NDSEG, DOE etc.), but there are also NIH fellowships for the later stages of grad school (F31). Think ahead about postdoc fellowships, including the K99 program, which has a limited eligibility window.

Life After the Lab

Letters of Reference
One of my jobs is to write letters of reference. I am always happy to do it. I just ask that you try to give me a few weeks advance notice, and remind me one week, two days, and one day before it is due, to make sure I don't forget. If you forget to give me much advance notice, it is still fine to ask for a letter. I will do my best to get it done, and if I have already written you a letter previously it may not take much time to adapt it.

To facilitate writing the best possible letters of reference, I ask that each person keep a list of things that I can mention in a letter. This should have anything you think might be useful to have me brag about. Instances where you demonstrated leadership, best talk/poster awards, well-received talks, effective supervision of students, help you provided me when drafting a grant… I recommend creating a google doc shared between the two of us that I can also update when I think of things. Some of these things are not appropriate for a CV, but can be useful to mention in a letter. If there is something that you think is specifically useful for me to mention in a particular letter, let me know.

Careers

I support both academic and non-academic career paths for people in the lab, as well as academic careers that are more teaching-oriented than research-oriented. Having a PhD leaves us with many interesting job options, and it is good to consider the space of possibilities and make an informed decision about what will be best for you. I know the most about how to help you establish an academic research career path, but also have many contacts in industry and am happy to make introductions if helpful. I will not be disappointed if you express interest in a path that deviates from the academic research trajectory, so don't be shy about raising it for discussion.

Internships

Particularly if you are interested in a non-academic career, it may worthwhile to consider doing an internship during the middle of your PhD years. This can be invaluable in providing a feel for what it is like to work in different situations outside of academia. If you think you might be interested in this let me know and I will try to help facilitate it. Internships usually work best during the summer, and once you have settled on a research direction and made some good progress towards a paper.

Taking Research With You When You Leave

If you continue on in science you may want to continue to work on things you were doing when you were in the lab. I am usually enthusiastic about lab alumni continuing research programs that began in my lab, and the way that I try to run the lab – with each person owning a distinct research area – is intended in part to make this possible. But it nonetheless requires coordination, and I ask that you keep me apprised of your plans (I will do the same). The general principle I ask everyone to follow is to avoid a situation where you end up competing with someone in the lab. If there is something specific you want to "own" going forward, tell me about it and I can help steer my current lab members in other directions, with the goal of achieving complementarity rather than competition. Alumni should obviously avoid anything that someone else in the lab was working on while they were there. And be mindful that something that feels very distinct to you may not seem that way to the other person, or to me – if there is any doubt we should talk about it and plan together to avoid headaches down the line.

Post-lab Mentoring

If I can help you in any way at subsequent career stages, please ask – I will always be eager to help. If you end up in an academic position I will share my teaching resources (slides, problem sets etc.), example grants and anything else that may be helpful. I may not always remember to offer these and so I am noting it here as a reminder to all of us.