

P.I.L.A.S Lab Manual

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Bienvenidos!

Welcome to the PILAS Lab within Oregon State University's School of Psychological Science. I (Iván) and the PILAS lab members are super glad to have you here and will do what we can to make your time in the lab amazing. We hope you'll learn a lot about psychology, neuroscience, social justice, and becoming a critical scientist. My hope is that in your time as a member of the lab (might call y'all Piloncillos) that you develop new skills (coding, data analysis, writing, giving talks), make new friends, and have a great deal of fun throughout the whole process.

This lab manual was inspired by several others, and borrows heavily from them (e.g., this one, this one, and this one). It's also a work in progress. If you have ideas about things to add, or what to clarify, talk to me (Iván, the PI).

When you join the lab, you're expected to read this manual. You're also highly encouraged to read it while deciding if you want to join the lab in the first place. You should always feel free to talk to Iván to clarify anything in the lab manual and let him know if he isn't following through on some of his promises! This lab manual is intended to be a starting point for a positive mentor-mentee and lab experience — but, ultimately, positive experiences will also require active investment in, and refinement of, our one-on-one interactions over time. I care a lot about your development as a junior scientist and mine as a mentor, and the best way for me to do that is to hear from you.

Research, Theory, and You

First and foremost, what is most important to me, in terms of research and science, is that you complete research that matters to you and that matters to your community. Much of my research stems from this feeling based on my own experiences. And if you have not heard this before, let me tell you now, embodied knowing is real knowledge. Science, and particularly psychological science, has a history of excluding those of marginalized groups from creating, and being represented in, scientific knowledge. In this lab, I want you to discover (or even create) theories that recognize your humanity. With that being said, there are a couple of specific areas of research that I am knowledgeable in and am happy to help you develop and expand. Those include:

1. Latinx Psychology
2. Bicultural Identity Development
3. Biculturalism, Bilingualism, and Cognition
4. Code-Switching
5. Critical Consciousness Development
6. Racial Identity Development
7. Racism and Racial Microaggressions
8. Adult Attachment

Additionally, I am slowly expanding my research interests into other areas, such as biracial identity development and queer identity. If any of these topics interest you, then you are in the right place! For more information or recommended readings, look at the Lab Resources section.

My research also includes a broad array of methodologies and methods that include, but are not limited to:

1. Psychophysiology: EEG and Cardiovascular Reactivity
2. Behavioral
3. Survey
4. Qualitative: Intersectional Approach; Narrative Interviews; Focus Groups
5. Mixed Methods
6. Quantitative Models: Multilevel Modeling; SEM

For graduate students, my hope for you is to become proficient in each of the following methods and methodologies listed above and build an expertise in one area you most value. My reasoning for this is that as a scientist, you should have a varied toolset in how to approach research questions. For undergraduate students, my hope for you is to become knowledgeable about the varied types of approaches you can use and will particularly emphasize survey work.

Critical Approach

It is important for me to explicitly state that in the PILAS Lab we are critical scientists, meaning that we approach our questions, research, methods, and analysis within a social justice framework. We are critical about how systems of oppression affect the communities we study and offer corrections or solutions to ways in which psychological science has contributed to these systems. We approach research through culturally sensitive methods and questions. We study within the communities we are interested in and avoid comparisons that can be misinterpreted as deficiencies. We want to do science that we are proud of and that uplifts the communities that give us their time and embodied knowledge.

Expectations and Responsibilities

Everyone

Big Picture

Science is hard. But it's also fun. In the PILAS Lab, we want to make sure that everyone experiences a positive, engaging, hostility-free, challenging, and rewarding lab environment. To maintain that environment, we all have to do a few things.

Personal

- Work on what you're passionate about, work hard at it, and be proud of it. Be so proud of it that your friends hype you up, that your parents don't understand it but they beam at how passionate you are when you talk about it.
- Support your fellow lab-mates. We are a familia! Help them out if they need help (even if you aren't on the project) and let them vent when they need to. Science is collaborative, not competitive.

- Respect your fellow lab-mates. Respect their strengths and weaknesses, respect their desire for quiet if they need it, and for support and a kind ear when they need that. Respect all their beautiful identities.
- If you're struggling, tell someone (tell Iván!). Your health, family, and happiness come first. The lab looks out for the well-being of all its members. We are here to help. It's ok to go through hard patches (we all do), but you shouldn't feel bad about asking for help or just venting.
- We can't thrive in an environment we aren't comfortable in, and disrespect or rudeness will not be tolerated in the lab. If you don't feel comfortable confronting the person in question, tell Iván. In any case, tell Iván.
- If you have a problem with Iván and are comfortable telling him about it, do! If you aren't comfortable, then tell the lab manager (for smaller issues) or another member of the psychology department (for more serious issues).

Science

- Scientists have to be careful. Don't rush your work. Think about it. Implement it. Double and triple check it. Incorporate sanity checks. Ask others to look at your code or data if you need help or something looks off. It's ok to make mistakes, but mistakes shouldn't be because of carelessness or rushed work.
- If you do make a mistake, you should definitely tell your collaborators (if they have already seen the results, and *especially* if the paper is being written up, is already submitted, or already accepted). We admit our mistakes, and then we correct them and move on.
- We all want to get papers published and do great things. But we do this *honestly*. It is never ok to plagiarize, tamper with data, make up data, omit data, or fudge results in any way. Science is about finding out the truth, and null results and unexpected results are still important. This can't be emphasized enough: *no academic misconduct!*
- Stay up to date on the latest research, by using RSS feeds and/or getting journal table of contents. Also consider following scientists in the field on Twitter
- Remember the lab philosophy: "Do work that is meaningful to you and have fun doing it". Have a life outside of the lab, take care of your mental and physical health, and don't ever feel bad for taking time off work. Protect your energy and time.

Small Picture

There are a few day-to-day things to keep in mind to keep the lab running smoothly.

- If you're sick, stay home and take care of yourself. Because you need it, and also because others don't need to get sick. If you're sick, reschedule your meetings and participants for the day (or the next couple of days) as soon as you can.
- You aren't expected to come into lab on weekends and holidays, and you aren't expected to stay late at night. You *are* expected to get your work done (whatever time of day you like to do it). Note: Iván takes this seriously! Fridays at 5pm he is out of the office and not back until 9am Monday.

- Show up to your meetings, show up to run your participants, show up to your classes, and show up to lab meetings. You do not have to be in at 9am every day – just show up for your commitments and work the hours you need to work to get stuff done.
- Make sure the door to the lab is locked if no one is inside. Turn off the lights if you're the last one leaving for the day.
- Keep the lab tidy. Eating in lab is fine, but clean up food waste, crumbs, spills. Put lab equipment back where you found it. Keep common areas uncluttered.
- Dress code is casual (and you can dress up if you want!) but not *too* casual. When interacting with participants or presenting your work, don't wear pajamas and sweat pants – but jeans are totally fine.
- Be on time. Especially when you are running participants – in fact, show up 15-20 minutes early to set everything up. And be on time for your meetings: respect that others have packed days and everyone's time is valuable.

Principal Investigator

All of the above, and I promise to also...

- Support you (scientifically, emotionally, financially)
- Give you feedback on a timely basis, including feedback on project ideas, conference posters, talks, manuscripts, figures, grants
- Be available in person and via e-mail on a regular basis, including regular meetings to discuss your research (and anything else you'd like to discuss)
- Give my perspective on where the lab is going, where the field is going, and tips about surviving and thriving in academia
- Support your career development by introducing you to other researchers in the field, promoting your work at talks, writing recommendation letters for you, and letting you attend conferences as often as finances permit
- Help you prepare for the next step of your career, whether it's a post-doc, a faculty job, or a job outside of academia
- Care for your emotional and physical well-being, and prioritize that above all else
- Support your teaching through pedagogical conversations, peer reviews, or idea bouncing

Graduate Students

All of the above, and you will also be expected to...

- Develop your dissertation research. Your dissertation should have at least 3 substantial studies that answer a big-picture question that you have. Much of your work has to be done independently but remember that others in lab (especially Iván!) are there to help you when you need it
- Help mentor undergraduate students in the lab when they need it – either because they ask, or because I ask you to. Undergrads can also help you collect data.
- Present your work at departmental events, at other labs (if invited), and at conferences
 - Yearly goal of attending *at least* two conferences a year (local and regional)

- Apply for grants (e.g., Ford Foundation or NSF grants). It's a valuable experience, and best to get it early.
- Think about what you want for your career (academia – research or teaching, industry, science writing, something else), and talk to Iván about it to make sure you're getting the training you need for that career
- Make sure you meet all departmental deadlines (e.g., for your prelims and thesis) -- and make sure Iván is aware of them!
 - My biggest advice is that for the milestones before your dissertation to make it simple! Those are just “obstacles” before you can do the work that will really set you towards your path.
- Prioritize time for research. Coursework is important, but ultimately your research gets you your PhD and prepares you for the next stage of your career.
- Prioritize your teaching, especially if that is the path you are aiming for. Start working on a teaching philosophy and think about how you view yourself as a pedagogue.
- Dedicate at least 10 hours (20 if paid RAship) a week to the lab (learning how to use EEG hardware and software, coding experiments, data analysis, data collection)
- Fill out an Individual Development Plan and discuss it with Iván
- Develop proficiency in the methodology and methods described above. To build this, you will have to create, either independently or collaboratively, 3 projects (outside of your thesis and dissertation) that includes one psychophysiology and one qualitative project, with the third being your choice. I want you to have all together at least 5 projects that you created and implemented (including thesis and dissertation) by the end of your time here.
- Collaborate! Either with your colleagues or other researchers outside OSU.
 - If of interest to you, find another professor's research that you like and ask to work with them. This is a great way to learn about research outside of my area and that you want expertise in (and to increase your publication list!!). Plus, you will want to know other faculty when it comes to them being a part of your committees.

Lab Manager

All of the above, and you will also be expected to...

- Help new lab members adjust to the lab by answering whatever questions they have that you can answer. If you can't answer, direct their questions to Iván
- Maintain IRB protocols for the lab (writing them, renewing them), archive old consent forms, keep any required paperwork up to date and organized
- Oversee the recruitment, scheduling, and training of undergraduate research assistants
- Maintain the lab website and lab wiki, update the lab manual, add lab events to the lab calendars, manage the lab Box folder, check the lab e-mail address (take care of any e-mails that you can, forward the rest to Iván)
- Give new lab members access to the lab wiki, lab Discord, lab calendars, and add their experiments to the lab Box
- Assist with the recruitment and scheduling of participants
- Assist lab members with data collection and analysis

Undergraduate Students

All of the above, and you will also be expected to...

- Assist other lab members with data collection and analysis (unless you are working on your own independent project under the mentorship of another lab member, in which case you should work on that)
- Develop your weekly schedule by talking to your graduate student mentor or Iván. You should be coming in every week, and scheduling 10 hours a week to get your work done
- Help with participant recruitment; either online or through community engagement
- If you are an URSA student, you must also attend lab meetings when your schedule permits, present at one of these lab meetings, and submit a write-up of your research by the end of the semester

Lab Resources

Wiki

The lab wiki is, well, a wiki for the lab. It has all of the information you need to get started, including tasks that need to be done upon arrival, day-to-day housekeeping duties, forms and flyers, programming and stats tips, information about accessing the high-performance computing cluster and lab servers. Edit it when you obtain information that will be useful for others to know! Ask the lab manager to be added as a member.

Discord

Discord will be used as the primary means of lab communication. To be added to the Discord contact either Iván or the lab manager.

Notes for the PILAS Lab Discord. When posting messages or looking for updates, check the appropriate channel: #general for lab announcements, #lab-meetings for notes or communication related to lab meetings, #papers for sharing links to lab-relevant papers and discussing them, #eprime-tips for sharing wisdom on EPrime code writing or asking (and answering) the coding questions of others, #EEG-methods for sharing wisdom on EEG data collection / analysis or asking (and answering) the EEG questions of others, #stats-help to ask and answer questions about statistical analyses, #project-ideas for any ideas you might have that the *entire* lab would be interested in pursuing, #tech for any recommended technology that would make your life easier, and #off-topic for non-lb-related chatting that is best kept out of the work-related channels.

Try to keep each channel on topic, so that people can subscribe only to the channels that concern them. For messages to one person or a small group, use direct messages. If you have to send attachments (e.g., papers) or send messages that include out-of-lab recipients, use e-mail. If it's an emergency and Iván isn't responding on Discord, e-mail him.

Full-time lab members should install Discord on their computers and/or phones. Part-time lab members should also check Discord regularly. You should of course feel free to ignore Discord on evenings and weekends –Iván will!

Information Not to Share. Discord is not a secure place for us to share participant data on. If you need to share data with someone, please do so through Box. Do not share any identifying information on participants through Discord either (such as names or email addresses).

Box

The lab has a shared Box account that is used to store experiment code, so that you can run your experiment on any computer that has access to the lab Box folder. The lab Box is also used to store documents and files for general lab use (e.g., IRB documents, stimuli, demographics forms, etc), though the lab wiki will also have that information. Contact the lab manager when you want to add something to the lab Box.

GitHub

The lab's GitHub (link) should be used to share code, stimuli, and data with the world. Only share data after you've spoken to Iván (we don't want to share the data too soon, before you've had a chance to look at it thoroughly yourself). When you share code, make sure it's *flawless*, because we don't want to distribute buggy code to the world! Have other lab members check it if possible. Ask the lab manager to get access to the lab's GitHub.

Outlook Calendars

The lab has Outlook calendars.

1. PILAS Lab calendar: *used to keep track of lab events, including any lab meetings just for our lab, and birthdays!*
2. PILAS Lab Hours: *used to keep track of who is in the lab during what time*
3. EEG Participants: *used to keep track of participants who are going in for an EEG experiment*
4. Behavioral Participants: *used to keep track of participants who are going in for a behavioral experiment*
5. Qualitative Participants: *used to keep track of participants who are going in for a qualitative study*

E-mail

We have a lab group for sending e-mails to the entire lab when necessary (). Contact the lab manager or Iván to get added to the lab listserv.

There is also a lab e-mail account that only the grad students and Iván can access (pilas.lab@oregonstate.edu) -- people often contact the lab (e.g., if interested in participating in studies) through that email address.

General Policies

Hours

Being in lab is a good way of learning from others, helping others, building camaraderie, having fast and easy access to resources (and people) you need, and being relatively free from distractions at home (e.g., your bed or tiktok). That said, hours in academia are more flexible than other jobs - but you should still treat it as a real job and show up to the lab. My primary concern is that you get your work done. If you have no meetings, no participants, and no other obligations that day, it might be a good day to work at home – but you can't do this all the time, and I expect to see everyone in the lab on a regular basis (but see Noise Policy).

For graduate students, I understand having to be away for classes and TA-ing but show up to the lab on a regular basis when you don't have those obligations.

To encourage lab interaction, try to be in most weekdays during 'peak' hours (assuming no other obligations) – e.g., between 11am and 4pm. This is not a hard rule, you can work at home occasionally, and I understand other obligations. But keep it in mind.

I'm a morning and weekday person and I respect boundaries so you will rarely, if ever, get messages from me on the weekends. You might get an occasional message late at night if there is a participant emergency, but never for business outside of that. The only times I will message you on a weekend is when we have a lab get together and y'all need directions or help finding wherever we are going.

Although I rarely work weekends, I will do that when absolutely necessarily. Please respect that by making sure to give me enough heads-up about impending deadlines so that I can get things done for you (e.g., write letters of recommendation, give feedback on manuscripts, etc.) while maintaining my work/life balance. For more details, see Deadlines.

Noise Policy

I love that lab members get along and want to spend time with one another. This is a critical aspect of a productive, friendly, and positive lab environment. I just ask that when you run participants that you maintain a quite environment!

PI Office Hours

In addition to weekly meetings (see below), and occasionally dropping by the lab, you can find Iván in his office. His door is almost always open; if it is, feel free to ask for a chat. He will always

say yes, though sometimes he can only spare a couple of minutes or might ask you to let him finish typing a sentence. If his door is closed, assume that Iván is either gone, in a meeting, or does not want to be disturbed – so please send a message (Discord or e-mail) rather than knocking.

Meetings

Weekly Lab Meetings

Weekly lab meetings (~1.5 hours each) are meant to be a forum for trainees to present project ideas and/or data to get feedback from the rest of the group. Projects at any level of completion (or even not yet started!) can benefit from being presented. These lab meetings can also be used to talk about methods, statistical analyses, new papers, and career development. For paper discussions, everyone must come to lab meeting having read the paper and prepared with comments and questions to contribute. Some weeks we may explore a particular issue and have people read different papers – in that case, come to lab meeting having read your paper and be prepared to summarize it for the group.

Each trainee (RA, students) is expected to present at least once every semester. These meetings are informal, and you can do what you wish with your slot – just be prepared to contribute something substantive. Lab members are also expected to attend every meeting (obviously, illnesses, doctor appointments, family issues, etc are a valid reason for missing a meeting). Undergraduate students are encouraged to attend as often as possible (assuming it fits in their course schedule).

Individual Meetings

At the beginning of each semester, we will set a schedule for weekly meetings. Each full-time lab member (grad student and URSA undergrad) will have a one-hour slot set aside to meet with Iván. If scheduling conflicts arise (e.g., because of travel), we can try to reschedule for another day that week. If there is nothing to discuss, feel free to cancel the meeting or just drop by for a brief chat.

Iván will meet with undergraduate students at least every other week (or according to need); graduate students should meet with their undergraduate mentee on a regular basis.

Deadlines

One way of maintaining sanity in the academic work is to be as organized as possible. This is essential because disorganization doesn't just hurt you, it hurts your collaborators and people whose help you need. When it comes to deadlines, tell your collaborators as soon as you know when a deadline is, and make sure they are aware of it the closer it gets. Don't be afraid to bug them about it (yes, bug Iván as well).

Give Iván at least one week's notice to do something with a hard deadline that doesn't require a lot of time (e.g., reading/commenting on conference abstracts, filling out paperwork, etc).

Give Iván *at least* two weeks' notice (preferably more) to do something with a hard deadline that requires a moderate amount of time (e.g., a letter of recommendation).

If you want feedback on research and teaching statements, or other work that requires multiple back-and-forth interactions between you and Iván before a hard deadline, give him as much time as you can; at the very least three weeks.

For manuscript submissions and revisions (i.e., which either have no deadline at all or only a weak deadline), send drafts to Iván as soon as you have them, and bug him to give you feedback if he hasn't responded in two weeks – papers are important!

Presentations

Learning to present your research is important. Very few people will read your papers carefully (sad, but true) but you can reach a lot of people at conference talks and posters. Also, if you plan on staying in academia, getting a post-doc position and getting a faculty position both significantly depend on your ability to present your data. Even if you want to leave academia, presentations are likely to be an important part of your job. Additionally, every time you present your work, you are representing not just yourself but the entire lab.

It is therefore highly encouraged that you seek out opportunities to present your research, whether it is at departmental talk series and events, to other labs, at conferences, or to the general public. If you are going to give a presentation (a poster or a talk), be prepared to give a mock presentation to the lab at least one week ahead of time (two weeks or more are advisable for conference presentations, and *many* weeks ahead of time are advisable for job talks, which require much refining). Practice talks will help you feel comfortable with your presentation, and will also allow you to get feedback from the lab and implement those changes well in advance of your real presentation.

Templates for posters will be available, and you can use those as much or as little as you'd like. Some general rules for posters should be followed: minimize text as much as possible (if you wrote a paragraph, you're doing it wrong), make figures and text large and easy to see at a distance, label your axes, and make sure different colors are easily discriminable. Other than that, go with your own style.

Iván is also happy to share slides from some of his talks if you would like to use a similar style. You'll get a lot of feedback on your talks in any case, but other people's slides might be helpful to you as you are setting up your talk. As with posters, feel free to go with your own style as long as it is polished and clear.

Recommendation Letters

Letters of recommendation are extremely important for getting new positions and grants. You can count on Iván to write you a letter if you have been in the lab at least one year (it's hard to really know someone if they have only been around for a few months). Exceptions can be made if students are applying for fellowships shortly after starting in the lab.

If you need a letter, notify Iván as soon as possible with the deadline (see [Deadlines](#) for guidance), your CV, and any relevant instructions for the content of the letter. If the letter is for a grant, also include your specific aims. If the letter is for a faculty position, also include your research and teaching statements. This will ensure that the letter contains all the information you need, and that it is submitted on time.

Data Management

Storing Active Datasets

Lab data can be stored in one of three places:

1. Lab PILAS Box: EEG data, behavioral data, and (separately from data and coded so that data are not identifiable) electronic consent forms, demographics forms, questionnaires
2. Shared Box folders can be used to share small datasets and/or code with collaborators
3. External Hard Drive—just in case!

Although the servers are backed up, the backup is only on-site – so make extra backups! Each lab member should back up raw data on an external hard drive, as well as the code needed to reproduce all analyses. You should not store data locally on your computer (but having data in a Box folder synced to your computer is ok).

Data Organization

If you have already run several independent projects and have a data organization structure that works well for you, feel free to use it. Survey data will usually just be kept in its own folder and does not need to be as complex as the behavioral and EEG studies outlined below. Do include the scales used, original data, and any cleaned datasets in the folder. If you are using a specific dataset for a project, please create a separate folder with the project name and your initials.

- studyName
 - InitialsprojectName (for example, ICthesis, ICdisser, ICcritical)

The following structure is recommended for behavioral and EEG studies (based on [Neuropipe](#)):

- studyName
 - projectName/subjects
 - individual directories for each of your participants
 - projectName/subjects/{subj}/analysis

- subject-specific analyses (e.g., 1st and 2nd level analysis – at the run level and experiment level)
 - projectName/subjects/{subj}/data
 - raw data for that participant, with the following directories...
 - EPrimeData (for behavioral data collected through EPrime)
 - EEGData
 - ERPData
 - SurveyData
 - projectName/subjects/{subj}/design
 - timing files for that participant, with different directories for the different GLMs you're running (and the different runs in the experiment)
 - projectName/subjects/{subj}/scripts
 - Matlab, Python, R, or bash scripts that you used for that participant. You should keep the 'template' scripts elsewhere, but you can store scripts you modified specifically for that participant here
- projectName/scripts
 - template scripts and that you may modify for each participant, as well as scripts and functions used for all participants and group analyses
 - recommend making subdirectories for each type of analysis (e.g., behavior, EEG analysis, survey, etc.)
 - if you have scripts that are the same for each participant, you can have symbolic links for them in your participant-specific scripts directories
- projectName/results
 - figures with main results, powerpoint or keynote presentations, manuscripts if you wish
- projectName/notes
 - detailed notes about the design, analysis pipeline, relevant papers, etc
- projectName/group
 - group analyses
 - recommend making subdirectories for each type of analysis (e.g., behavior, EEG/ERP)
- projectName/task
 - code for your behavioral experiment, stimuli, piloting information
 - if you are running your presentation code out of Box, it will still be good to have a copy of the code here (but you can keep the stimuli only on Box if you'd like)

When you leave the lab, your projects directories should be set up like this, or something similarly transparent, so that other people can look at your data and code. You *must* do this, otherwise your analysis pipeline and data structure will be uninterpretable to others once you leave, and this will slow everyone down (and cause us to bug you repeatedly to clean up your project directory or answer questions about it).

Archiving Inactive Datasets

Before you leave, or upon completion of a project, you must archive old datasets and back them up. This should be done in a number of ways. First, you are responsible for backing up your data continuously, on the external hard drive that was bought for you upon your arrival. If you did not get an external hard drive, ask Iván for one as soon as possible (see *Storing Active Datasets*, above). Second, upon submitting a paper to a journal, all datasets and code must be publicly shared. This can be done on OSF, GitHub, or other platforms (see the lab wiki for details). Finally, after a project is completed and the paper published in a peer-reviewed journal, move the project to the archive on the server. Talk to Iván about this first.

Open Science

We're all for open science, so lab members are encouraged (well, required) to share their code and data with others, whether they are in the lab or outside of it. Within lab, you can share your code and data whenever you like. But do not share your code or data with the outside world until you think (and Iván agrees) that the lab has finished working with it. This gives us an opportunity to work with the data to meet our needs (including grant needs!) before releasing it for other people to use. Generally, we will make our data and code publicly available simultaneously with the submission of the paper to a peer-reviewed journal (exceptions might be made if work on the dataset is ongoing for a different paper). Currently, the best option for sharing smaller datasets might be the Open Science Framework). You will also be heavily encouraged to submit preregistrations!

We will also share our work with the world as soon as we ready, which means preprints! The lab policy is to upload a preprint of a manuscript simultaneously with initial submission to a journal. The preferred preprint servers are bioRxiv and PsyArXiv. We will also put PDFs of all our papers on the lab website, and you should share PDFs of your paper with whoever asks.

Funding

Funding for the lab currently comes from Iván's start-up package from OSU and will hopefully come from other avenues in the future.

At some point, you will likely be asked to provide a figure or two for a grant Iván is writing, and/or provide feedback on the grant. Relatedly, you are entitled to read any grant Iván has submitted, whether it is ultimately funded or not. Aside from being a good opportunity to learn how grants are written, this will also allow you to see his vision for the lab in the years ahead. Feel free to ask Iván to see any of his grants.

Lastly, for graduate students, I highly encourage you to start looking for your own grants and fellowships to apply for. Some possible avenues come from:

- APA
- APS
- Ford Foundation

- American Psychological Foundation
- Join a specific APA division and see what awards are exclusive to that division!
 - Some of my favorite are: APA Div 45, NLPA, APA Div 44

Code of Conduct¹

Taking Photos & Videos

We respect the privacy and comfort of lab members by only taking photos or video recordings of them with their explicit knowledge and consent. This is especially important in situations where a lab member would otherwise not be aware of you taking a photo and therefore cannot object if they do not want you to – e.g., if they are wearing one of our EEG caps. To avoid ambiguity about when a lab member is vs is not aware of photos being taken, we ask that everyone obtain consent from lab members before taking photos or videos, and obtain consent again before posting any images on social media. This is done to respect others’ privacy and acknowledge that people have varying degrees of comfort related to being photographed and especially with having those photographs shared on social media.

The goal of this is to foster an environment where everyone feels safe to be who they are, take risks, and have fun, without worry or self-consciousness. If someone wants to be photographed doing something fun or silly in lab events, and consents to be photographed, by all means go ahead! Just please respect the privacy of those who do not want that.

On a related note, you cannot photograph your participants during an experiment. We do not have IRB approval to do this. If you would like a photograph of someone demonstrating your experiment, ask a lab member if they would feel comfortable being photographed while demonstrating what a participant does in an experiment.

Scientific Integrity

Research (Mis)conduct

The lab, and OSU, is committed to ensuring research integrity, and we take a hard line on research misconduct. We will not tolerate fabrication, falsification, or plagiarism. Read OSU’s policies on the conduct of research carefully (main page [here](#)).

A big problem is why people feel the need to engage in misconduct in the first place, and that’s a discussion that we can have. If you are feeling pressured to succeed (publish a lot, publish in high impact journals), you should reach out to Iván and we can talk about it – but this pressure is something we all face and is *never* an excuse to fabricate, falsify, or plagiarize. Also, think about the goal of science and why you are here: you’re here to arrive at a truth, to get as close as we can to facts about the brain and behavior. Not only is research misconduct doing you a disservice, it’s

¹ This was adapted from the code of conduct found [here](#) and [here](#).

also a disservice to the field. And it risks your entire career. It is never right and never worth it. Don't do it.

Reproducible Research

If you gave someone else your raw data, they should be able to reproduce your results exactly. This is critical, because if they can't reproduce your results, it suggests that one (or both) of you has made errors in the analysis, and the results can't be trusted. Reproducible research is an essential part of science, and an expectation for all projects in the lab.

For results to be reproducible, the analysis pipeline must be organized and well documented. To meet these goals, you should take extensive notes on *each step* of your analysis pipeline. This means writing down how you did things every step of the way (and the *order* that you did things), from any pre-processing of the data, to running models, to statistical tests. It's also worth mentioning that you should take detailed notes on your experimental design as well. Additionally, your code should also be commented, and commented clearly. We all know what it's like to sit down, quickly write a bunch of code to run an analysis without taking time to comment it, and then having no idea what we did a few months down the road. Comment your code so that every step is understandable by an outsider. Finally, it is highly encouraged that you use some form of version control (e.g., Git in combination with GitHub) to keep track of what code changes you made and when you made them, as well as sharing code with others.

Reproducibility is related to replicability, which refers to whether your results can be obtained again with a *different* data set. That is, if someone ran your study again (with a different group of participants), do they get the same results? If someone ran a conceptually similar study, do they get the same results? Science grows and builds on replicable results – one-off findings don't mean anything. Our goal is to produce research that is both reproducible and replicable.

Authorship

Like other labs, we will follow the APA guidelines with respect to authorship:

"Authorship credit should reflect the individual's contribution to the study. An author is considered anyone involved with initial research design, data collection and analysis, manuscript drafting, and final approval. However, the following do not necessarily qualify for authorship: providing funding or resources, mentorship, or contributing research but not helping with the publication itself. The primary author assumes responsibility for the publication, making sure that the data are accurate, that all deserving authors have been credited, that all authors have given their approval to the final draft; and handles responses to inquiries after the manuscript is published."

Talking about authorship can kinda be like talking about money, it's awkward but necessary. At the start of a new project, the student taking on the lead role can expect to be first author, especially if it is *your* idea. Iván will typically be the last author on student projects, unless the project is primarily under the guidance of another PI and Iván is involved as a secondary PI – then Iván will

be second to last and the main PI will be last. Students who help over the course of the project may be added to the author list depending on their contribution, and their placement will be discussed with all parties involved in the paper. Large grant-funded projects initiated by Iván will typically have him go first, but secondary data analyses from these projects are up for grabs. If a student takes on a project but subsequently hands it off to another, they will most likely lose first-authorship. However, if you and a lab-member collaborate on a project then we can do a co-first-authorship. All of these issues will be discussed openly, and you should feel free to bring them up if you are not sure of your authorship status or want to challenge it.

Old projects

If a student, grad or undergrad, collects a dataset but does not completely analyze it or write it up within 3 years after the end of data collection, Iván will re-assign the project (if appropriate) to another person to expedite publication. If a student or post-doc voluntarily relinquishes their rights to the project prior to the 3-year window, Iván will also re-assign the project to another individual. This policy is here to prevent data from remaining unpublished, but is meant to give priority to the person who collected the data initially.

Human Subjects Research

Adherence to approved IRB protocols is *essential*, and non-adherence can lead to severe consequences for the entire lab (i.e., we may lose permission to run any research on human participants). All lab members must read and comply with the IRB consent form and research summary for any project that they are working on. If you are not on the IRB, you cannot run participants, look at the data, analyze the data, or be in any way involved with the project.

Lab members must complete CITI Training and save their certificate and upload it to the Lab Box folder. To be added to an existing IRB, talk to the lab manager and make sure your certificate is uploaded. If your project does not fall under the scope of a current IRB protocol, talk to Iván and the lab manager about writing a new one or filing an amendment to an existing one. You *must* ensure that you have IRB approval to run your study before you begin (which means that you either submitted an IRB protocol that got approved, or your name was added to an existing or amended IRB).

If a participant falls ill, becomes upset, has an accident with lab equipment, or experiences any problems while you are conducting your research, you must notify me and the lab manager as soon as possible. We may need to report this information to the IRB and/or funding agencies.

Thanks for reading this far! I'm super excited about having you (yes, you!) in the lab! If you have any questions or suggestions for the lab manual, please feel free to contact the lab manager of Iván himself.