



Hogeveen Lab Manual

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A. Welcome!

If you're reading this you must have recently joined the Hogeveen Lab in The University of New Mexico's Department of Psychology. We are delighted to have you!

Dr. Hogeveen's goal is to facilitate a laboratory atmosphere where every lab member...

1. Has fun coming to work every day
2. Gains a ton of new knowledge and skills
3. Meets people they enjoy working with
4. Advances their professional development (academic or otherwise)

This lab manual borrows heavily from Dr. Mariam Aly's (<https://github.com/alylab/labmanual>), and it is also likely to change as the lab grows. If you have any suggestions, please do not hesitate to bring them up with Dr. Hogeveen.

B. Expectations and Responsibilities

B.1. Everyone

To make sure that our lab is a positive, inspiring, and hostility-free work environment, there are a few things we need to keep in mind:

- **Good science should not be rushed.** From study design, data collection, and through data analysis and publication, conduct your work thoughtfully. Double check your work, and incorporate sanity checks (e.g. “this formula should = X, does it?”) to ensure that your data means exactly what you think it means. We all make mistakes, but we don’t want to make mistakes due to carelessness.
- **Communication is essential.** Talk through your science with the lab and your collaborators. If there is a confound in your design, it is much easier to solve it before collecting data. Additionally, if any mistakes are made in data analysis or interpretation, tell Dr. Hogeveen and your collaborators immediately. At all stages of the process, communication keeps us from making mistakes. *If we do make mistakes, we admit them to our colleagues and fix them going forward.*
- **Honesty is the best policy.** We all want to do good science, and a central part of that is the honest search for the truth about human psychology and neuroscience. Dishonest things like plagiarizing, fabricating data, or omitting data will only end up hurting everyone involved. This can’t be emphasized enough: *No research misconduct!*
- **Be a good community member.** Support your labmates, and help them out if they need it. We want the lab to be a collaborative, not a competitive atmosphere. If there is any tension or hostility in the lab, something has to be done about it immediately, so please tell Dr. Hogeveen. Treat others how you’d like to be treated, and both your career and the laboratory atmosphere will benefit!
- **Practice self-care, and recommend it to others.** Be sure to have happy places outside of the lab, and prioritize your well-being when you need to. Your health and happiness are your highest priorities. If you are struggling, please tell your labmates or Dr. Hogeveen. If you see a labmate struggling, please try to offer your support, and tell Dr. Hogeveen if that is more comfortable. The lab should be a community we truly care about the well-being of our colleagues.
- **Respect the shared space.** We all work in the lab, and should respect that fact. Tidy up after yourself (especially after eating delicious smelling food that might not smell delicious to everyone). Make sure the door is locked and lights are off if you’re the last one to leave.

- **Business comfortable.** Dress code is casual, but feel free to dress up if you want! This is still a place of work, so when interacting with participants, going to meetings, or presenting, you shouldn't wear pajamas or sweat pants, but jeans are totally fine.
- **Hours and punctuality.** Being in the lab is a great way to be productive in academia, but hours in academia are more flexible than in other jobs. That said, this is still a job. For people who prefer to work irregular hours, or prefer to work on some tasks (e.g. grant writing) outside of the lab, please discuss this up front with Dr. Hogeveen. In general, there will be two guiding policies concerning laboratory hours:
 1. **Come to the lab.** Full time lab members (e.g. graduate students, postdocs, full time research assistants) should be in most weekdays during 'peak' hours (e.g. 10-4). Conversely, don't kill yourself. If you find yourself working long hours (i.e. > 50 hours / week) too often, discuss this with Dr. Hogeveen, we might just need to recalibrate expectations.
 2. **Honor your commitments.** Be at least 15-20 minutes early to get everything set up if you are running participants. Be on time for your meetings, respecting the time of the folks you're meeting with.
- **Attend lab meetings.** Lab meetings are on Thursdays 2:30-3:30 PM. If you are available you are expected to attend these meetings. If you're not available, you're expected to let your labmates know that you will not be there.

B.2. Dr. Hogeveen

All of the items in **Section B.1.**, and I promise to also...

- **Give feedback.** I will provide the best mentorship I can, and give clear and concise feedback on a timely basis. I will be open to revising my feedback when I am wrong.
- **Be available.** I will make myself available to meet in person at least once per week, and more often if necessary. I will also respond to e-mails as quickly as possible.
- **Support your development.** I will do what I can to help you prepare for the next step of your career, whether it is in academia or an industry job outside of academia. I will write recommendation letters for anyone who has spent at least one semester working in the lab.
- **Apply for grants.** One of my biggest responsibilities as the lab PI is to bring in grant funds. I promise to submit quality grant applications to ensure we have the necessary funding to keep doing innovative science in the lab.

B.3. Postdoctoral Fellows and Graduate Students

All of the items in **Section B.1.**, and you will also be expected to...

- **Develop your research.** You will be expected to develop your own research project (if postdoc) or dissertation research project (if grad student) in collaboration with Dr. Hogeveen.
- **Mentor Junior Researchers.** You will be expected to provide practical and professional guidance for graduate students (if postdoc) or undergraduate students (if grad student) when they need it. Sometimes they may ask you directly, and sometimes Dr. Hogeveen may ask you to help them out.
- **Apply for grants.** Research is expensive, and it is an invaluable experience to write grant proposals early in your career, whether or not they are successful. Dr. Hogeveen will be happy to work with you to submit applications for postdoctoral (e.g. K99 or F32) or graduate student (e.g. F31 or NSF) funding opportunities.
- **Stay on top of deadlines.** Between conference abstract deadlines, deadlines for important graduate coursework and dissertations, and deadlines for grant applications, both postdoctoral research and graduate school require you to manage your schedules in order to make sure that you get everything done on time. You should definitely use some sort of a calendar to manage your deadlines, and stay in regular contact with Dr. Hogeveen to make sure he remembers them.
- **Develop your written and oral communication skills.** Research careers are heavily influenced by your ability to clearly describe your science both in writing and in oral presentations. Write up as many of your research findings as you can while you are in the lab, and Dr. Hogeveen will help you get as many papers published as possible. Also, agree to give as many conference and Department presentations as you can, oral communication is a critical skill both inside and outside of academia.
- **Prioritize your research.** Other responsibilities like teaching and coursework are important, but ultimately research is likely to be the most important aspect of your career development in the lab. You should be prioritizing your independent research projects (if postdoc) and dissertation research (if graduate student) as much as possible while in the lab.
- **Think about your future.** Think about what you want from your career. Do you want to be an academic researcher, a data scientist, a science writer? Your time in the lab should leave you well situated to pursue any of these opportunities, and make sure you are being honest with yourself and with Dr. Hogeveen about which of these opportunities you would like to pursue.

B.4. Research Assistants (RAs)

All of the items in **Section B.1.**, and you will also be expected to...

- **Assist with recruitment and data collection.** You will be responsible for recruiting participants (e.g. posting fliers around the community, SONA for

undergraduate volunteers, etc.), and collecting data for ongoing studies in the lab. This will be done either at the direction of Dr. Hogeveen, or under the supervision of a postdoctoral fellow or graduate student in the lab.

- ***Assist with data analysis and writing papers.*** The core job for RAs in the lab will be participant recruitment and data collection, and those will need to be prioritized above other responsibilities. That said, Dr. Hogeveen will do his best to make sure you have opportunities to learn to analyze data and contribute to writing research papers while you work in the lab.
- ***Be in the lab on a regular basis.*** As you will likely be supporting projects conducted by Dr. Hogeveen or other senior members of the lab, you are expected to be present in the lab when others are around. Therefore, you probably shouldn't work your hours between 7 PM and 3 AM. Taking your hours between 9 AM and 5 PM or 10 AM and 6 PM would be ideal. If you are working with a graduate student or postdoctoral mentor in the lab, you will be expected to develop a weekly schedule with that mentor.

C. Code of Conduct

C.1. Essential Policies

The lab is an environment where everyone should be treated with dignity and respect, and that must be free of harassment and discrimination. All lab members are expected to abide by the UNM policies regarding discrimination and equal opportunity ([link here](#)), and regarding the maintenance of a respectful campus environment ([link here](#)). We will not tolerate any verbal or physical harassment or discrimination on the basis of gender, gender identity and expression, sexual orientation, disability, physical appearance, body size, race, or religion. We will not tolerate intimidation, stalking, following, unwanted photography or video recording, sustained disruption of talks or other events, inappropriate physical contact, and unwelcome sexual attention. Finally, it should go without saying that lewd language and behavior have no place in the lab, *including any lab outings*.

If you notice someone being harassed or are being harassed yourself, tell Dr. Hogeveen immediately. If Dr. Hogeveen is the cause of your concern, then reach out to the Department Chair or another trusted faculty member in the Department.

C.2. Scientific Integrity

Research (Mis)conduct

- **Policies on research integrity.** The lab is committed to ensuring research integrity, and we take a hard line on research misconduct. We will not tolerate fabrication, falsification, or plagiarism. Everyone who joins the lab is advised to complete the **Responsible Conduct of Research (RCR) basic course through the Collaborative Institutional Training Initiative (CITI)**. You are also advised to read UNM's policies regarding research integrity ([link here](#)).
- **Pressures to succeed.** Dr. Hogeveen is happy to meet with you to discuss any pressures that may drive you to consider engaging in misconduct. If you are feeling pressured to succeed, you should know that this pressure is something that we all face and is never an excuse to fabricate, falsify, or plagiarize.
- **Do it for science!** Remember the goals that made you interested in cognitive neuroscience in the first place: We are here to conduct experiments that provide us with a truer understanding of how the human brain works. Sometimes we will collect datasets that are noisy or counterintuitive, that is to be expected, we must work to make sense of the noise and never manipulate it to fit with our hypotheses. The truth of that enterprise relies on the integrity of researchers like you and I. Not only will misconduct do you and the lab a disservice, it will also disservice the field.

Reproducible Research Practices

- **The goal.** Ideally, we would like any data analysis pipeline that we include in a dissertation, manuscript, or conference abstract to be entirely reproducible. Accordingly, all projects should aim to have analysis pipelines that can be re-run in order to reproduce the results exactly.
- **Coding is helpful.** Using coding languages like Bash, Python, R, or MATLAB often makes it easier for statistical analyses and figures to be reproduced. Accordingly, Dr. Hogeveen recommends that you gain some experience using these languages in order to run your analyses in the lab. However, if you are not a great programmer and find this prospect intimidating, there are many graphical user interface (GUI) software packages that can produce statistical outputs and figures that can be reproduced and shared (e.g. JASP, JAMOVl, and Excel).
- **Document everything.** Regardless of whether you script your analyses or run them in a GUI, document what you have done extensively. There is no telling who else in the future will want to run a meta-analysis including your data, and it is a total nightmare trying (and failing) to reproduce someone's analyses without adequate documentation after they leave the lab. If you are scripting your analyses, include extensive comments. If you are running your analyses using GUIs, write down what you did and why you did it in a well-labelled text document. Documentation is not only helpful for future researchers interested in your work, but it is critical for saving your own time when you have to come back to an analysis a few weeks, months, or years after you initially worked on it.
- **Version control.** Regardless of whether you code your analyses or save them as PDFs, it is super helpful to practice some form of version control (i.e. automatically stored backups of previous versions of your files). This can be done automatically using things like GitHub and OneDrive, which allow you to access and revert to previous file versions.

Authorship

- **APA guidelines for who is an author.** We subscribe to the APA authorship guidelines. These guidelines are available [here](#), and the pertinent information is this: "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."
- **Conventions regarding authorship order.** Trainees taking the lead role on a project can expect to be first author on any manuscripts emanating from the project. Dr. Hogeveen will typically be the last and corresponding author for

manuscripts that come out of the lab. If a trainee contributes to a project they are not leading, they may be added to the author list depending on their contribution, and their placement will be discussed with all parties involved in the paper. If a trainee takes on a project and hands it off before it is finished, they will most likely lose first authorship to whomever they hand it off to, unless co-first authorship is appropriate. All of these authorship issues can be discussed openly, and you should feel comfortable discussing them with Dr. Hogeveen if you are unsure of your authorship status, or feel that it is not reflective of your contribution.

Old Projects

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

C.3. Human Subjects Research

Knowledge of and adherence to the IRB protocols is essential, and non-adherence can lead to severe consequences for the entire lab. 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 the **Collaborative Institutional Training Initiative (CITI) Training** for UNM Main Campus researchers and save their certificate. To be added to an existing IRB, talk to an RA involved in the project and provide them with your CITI certificate. If your project does not fall under the scope of a current IRB protocol, talk to Dr. Hogeveen 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.

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 Dr. Hogeveen and any senior researchers involved in the project as soon as possible. We may need to report this information to the IRB and/or funding agencies.

D. Lab Resources

D.1. Physical Space & Collaborating Research Centers

- a. *Logan Hall 270*: The lab is located on the second floor of the Logan Hall building in room #270. The lab was an old computer laboratory and storage location for a department network drive, and accordingly the room is equipped with i) a projector and pull down screen and a white board for presentations and discussing data, and ii) a substantial number of network ports throughout the room. The laboratory houses a testing cubicle for running behavioral and psychophysiological experiments. The laboratory will also house several workspaces, a conference table for hosting meetings, a couch for taking data analysis breaks, and a small kitchenette so that you can bring food to work. (*Note: If you are reading this while the laboratory remodel is still ongoing, Dr. Hogeveen apologizes that some of these features will not yet be accessible*).
- b. *Center for Brain Recovery and Repair (CBRR)*: The lab works extensively with researchers at the UNM North Campus' Center for Brain Recovery and Repair in Domenici Hall ([website here](#)). Dr. Hogeveen collaborates particularly closely with individuals in the Clinical Neuropsychology Core, which houses a wide range of brain imaging (e.g. EEG, fNIRS) and brain stimulation (e.g. tDCS, HD-tDCS) equipment. If you would like to initiate a brain injury project in collaboration with the CBRR, please discuss this with Dr. Hogeveen.
- c. *Mind Research Network (MRN)*: The lab works extensively with researchers at the Mind Research Network (MRN), a nonprofit research institute located adjacent to Domenici Hall on the UNM North Campus ([website here](#)). The MRN is a world class facility that houses a 3T Siemens MRI scanner, high density EEG suites, and one of very few magnetoencephalography (MEG) systems in the world. If you have any questions about the MRN or would like to initiate a project in collaboration with the MRN, please discuss this with Dr. Hogeveen.
- d. *Psychology Clinical Neurosciences Center (PCNC)*: The Hogeveen lab is located within the PCNC, which is directed by Dr. Vincent Clark. The PCNC is home to high-density EEG systems, a neuroConn tDCS device, and a Nexstim TMS device equipped with neuronavigation. If you wish to conduct research using any of the facilities available through the PCNC, please discuss this with Dr. Hogeveen.
- e. *Center for Development and Disability (CDD)*: Dr. Hogeveen is initiating research collaborations with the CDD, a UNM Health institute that services nearly 100% of the patients with neurodevelopmental disorders in New Mexico. If you wish to conduct research related to autism spectrum disorder or any other neurodevelopmental population in collaboration with the CDD, please discuss this with Dr. Hogeveen.
- f. *Center for Advanced Research Computing (CARC)*: Functional neuroimaging data can take some hefty computing resources. Accordingly, Dr. Hogeveen collaborates

with researchers at CARC (UNM affiliated center run by faculty in engineering and computer science) to analyze data using parallelized routines on their high-performance computers (HPCs). Whenever running a project with a high computational demand (e.g. fMRI or EEG data analysis), please talk with Dr. Hogeveen about potentially processing this data with CARC.

D.2. Lab Gmail and Calendar.

- **Gmail.** A lab Gmail address has been created for maintaining correspondence with potential participants and for creating centralized accounts for the lab (e.g. AppStore, GitHub, etc.). The address is **hogeveen.lab@gmail.com** and Dr. Hogeveen will supply you with the password after joining the lab.
- **Calendars.** Participants and any other laboratory events should be added to the laboratory Gmail calendar. The PCNC shared resource spaces are also shared with the lab Gmail, so if you need to book one of the assessment rooms you can check if it is available through this account.

D.3. Slack

- **Slack workspace.** The laboratory uses Slack as the primary method for communicating with the team, which can be more efficient and effective than communication via email. The lab slack workspace is <hogeveen-lab-unm.slack.com> and a more senior lab member will gladly send you an invite to join the workspace once you've joined the lab.
- **Channels.** 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, #code-tips for sharing wisdom on code writing or asking (and answering) the coding questions of others, #fmri-methods for sharing wisdom on fMRI data collection / analysis or asking (and answering) the fMRI questions of others, #stats to ask and answer questions about statistical analyses, and #random for non-work-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 Dr. Hogeveen isn't responding on Slack, e-mail him.
- **Usage.** Slack can be accessed using a web browser, or via app installed on computers and/or phones. *You should absolutely feel free to ignore Slack on evenings and weekends, Dr. Hogeveen probably will too!*

D.4. Data Management

Data Storage

Laboratory data can be stored in one of four places:

1. Locked File Cabinets (for hard copies; e.g. consent forms, payment forms, paper-pen questionnaires)
2. Local computers (for behavioral and brain imaging data)
3. PCNC Servers (backup location for data stored on local computers)
4. CARC (high performance computing; for batch processing neuroimaging data)
 - <http://www.carc.unm.edu/>
5. COINS (first storage location for all fMRI data, and corresponding behavioral data for anything collected on North Campus. Can also be used for main campus studies if it is preferred.)
 - <https://coins.mrn.org/>

Notes: Local computers may experience power outages, so lab members are encouraged to perform daily backups to PCNC Servers. Additionally, at UNM we all have 1 TB of free cloud computing storage through OneDrive. Having a OneDrive account that syncs across your laboratory computer and any other password-protected computers you use is okay. **ANY PERSONALLY IDENTIFYING INFORMATION SHOULD BE STORED SEPARATELY FROM THE CORRESPONDING DATASET, AND SHOULD REMAIN STORED IN FILE CABINETS, ON LOCAL COMPUTERS, OR ON COINS.**

Project File Organization

For both ongoing and completed projects in the lab, the following file organization is *highly* encouraged. This will make your future self, and future lab members' lives a lot easier. The structure is designed to enable rapid location and reproduction of all old analyses and figures produced in the lab.

1. *Organized by Semester:* e.g. <Fall_2018/> as the root for your work in a given term. When a project is still ongoing at the end of a semester, you copy+paste the project into the new semester (or cut+paste if your drive is short on space)
2. *General Project Directory:* e.g. <Fall_2018/projects>
3. *Specific Project Directory:* e.g. <Fall_2018/projects/projName>

4. *Admin Directories*: e.g. <Fall_2018/projects/projName/admin/IRB>, <Fall_2018/projects/projName/admin/documentation>, etc.
5. *Data Directories*: e.g. <Fall_2018/projects/projName/data/behavDat>, <Fall_2018/projects/projName/data/mriDat>, etc.
6. *Script Directories*: e.g. <Fall_2018/projects/projName/scripts/py>, <Fall_2018/projects/projName/scripts/R>, etc.
7. *Plot Directories*: e.g. <Fall_2018/projects/projName/plots/mriFigs>, <Fall_2018/projects/projName/plots/behavFigs>, etc.
8. *Manuscript Directory*: e.g. <Fall_2018/projects/projName/manuscripts/journalName >
9. *Materials*: e.g. <Fall_2018/projects/projName/materials/taskName>
10. *References*: e.g. <Fall_2018/projects/projName/refs/refTopics>

D.5. Lab Equipment

- a) *Biopac*. We have an MP160 data acquisition for recording a variety of different psychophysiological signals, including: electromyography, electrodermal activity, and electrocardiographic activity. Manual for MP160 setup and usage **can be found here**. Information for the accompanying AcqKnowledge software **can be found here**. It is likely that there are better packages in R or MATLAB for analyzing psychophys data than the AcqKnowledge software.
- b) *Gazepoint*. We have a Gazepoint GP3 eye tracking system. Information regarding the system setup and usage **can be found here**, and information regarding the data analysis software **can be found here**. It is likely that there are better packages in R or MATLAB for analyzing eye tracking data than the GP3 software.
- c) *Other equipment*. Here is a list of the computers that are currently operational in the lab:
 - CANOPYPC1 & CANOPYPC2: Primary lab computers with sufficient processing power and space to test MRI data analysis pipelines locally before running batch processes on CARC servers.
 - Lenovo IdeaCentre
 - AMD Ryzen 7 1700 3 Ghz 8-core processor
 - 16 GB DDR4 RAM
 - 1 TB Hard Drive and an additional 128 GB SSD
 - CANOPYPC3: Stimulus presentation computer primarily to run behavioral experiments in the laboratory cubicle.
 - Dell Precision 3430 Small Form Factor

- Intel Core i5-8500 6-core processor
- 8 GB DDR4 RAM
- 1 TB Hard Drive

E. User Agreement

Once you have finished reading this manual, please complete the form below, save the document as a PDF, and send to Dr. Hogeveen (jhogeveen@unm.edu).

— I [Insert name] confirm that I have read all sections of the Hogeveen Lab Manual, and pledge to follow all of the policies set forth in the manual on [Insert date].