IMEI

Research Group Manual

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Welcome!

It looks like you recently joined the IMEI Research Group in Universidad Rey Juan Carlos' Education Department. That's great! We're really glad to have you here and will do what we can to make your time in the group amazing. We hope you'll learn a lot about education, develop new skills (coding, data analysis, writing, giving talks), make new friends, and have a great deal of fun throughout the whole process.

When you join the research group, you're expected to read this manual. You're also highly encouraged to read it while deciding if you want to join the research group in the first place. You should always feel free to talk to Jesús to clarify anything in the research group manual, and let him know if he isn't following through on some of his promises! This research group manual is intended to be a starting point for a positive mentor-mentee and research group experience — but, ultimately, positive experiences will also require active investment in, and refinement of, our one-on-one interactions over time.

This research group manual borrows heavily from this one. It's also a work in progress. If you have ideas about things to add, or what to clarify, talk to me. This manual is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

Expectations and Responsibilities

Everyone

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

- Work on what you're passionate about, work hard at it, and be proud of it. Be so proud of it that you have to suppress bragging (but it's OK to brag sometimes).
- 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 makes 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!*

- Support your fellow research-mates. 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. Help others, and you can expect others to help you when you need it.
- Respect your fellow research group 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.
- If you're struggling, tell someone. Your health and happiness come first. The research group 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 shy about asking for help or just venting.
- 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.
- Show up to your research group meetings, show up to your classes, show up for your commitments, and work the hours you need to work to get stuff done.

Principal Investigator

All of the above, and I promise to also…
- Support you and 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 research group is going, where the field is going, and tips about surviving and thriving in academia
- 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

Graduate Students

All of the above, and you will also be expected to…
- Develop your dissertation research. Much of your work has to be done independently, but remember that others in the research group (especially Jesús!) are there to help you when you need it
- Present your work at university events and at conferences
- Apply for grants. It's a valuable experience, and best to get it early.
- Think about what you want for your career (academia – research and/or teaching, industry, science writing, something else), and talk to Jesús about it to make sure you're getting the training you need for that career
- Make sure you meet all university deadlines (e.g., for your exams and thesis) -- and make sure Jesús is aware of them!
- Prioritize time for research. Coursework and teaching are important, but ultimately your research gets you your PhD and prepares you for the next stage of your career.

<u>Undergraduate Students</u>

All of the <u>above</u>, and you will also be expected to...
- Assist other research group members with data collection and analysis (unless you are working on your own independent project under the mentorship of another research group member, in which case you should work on that)
- Develop your schedule by talking to your graduate student mentor or your post-doc mentor. You should schedule enough time to get your work done

Code of Conduct

<u>Essential Policies</u>

All research members are expected to abide by the Universidad Rey Juan Carlos policies on discrimination and harassment, which you can (and must) read about <u>here</u>. Essential policies of Universidad Rey Juan Carlos can be accessed <u>here</u>.

<u>Scientific Integrity</u>

Research (Mis)conduct
The IMEI Research Group, and Universidad Rey Juan Carlos, is committed to ensuring research integrity, and we take a hard line on research misconduct. We will not tolerate fabrication, falsification, or plagiarism. Read Universidad Rey Juan Carlos' policies on the conduct of research carefully (main page <u>here</u>, URJC ethics committee <u>here</u>).

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 Jesús 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 the truth, to get as close as we can to facts. Not only is research misconduct doing you a disservice, it's 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 research group.

Authorship
Like other research groups, we will follow the APA guidelines (read <u>here</u>) with respect to authorship, which you can (and must) read about <u>here</u>:

" 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, or 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."

At the start of a new project, the student or post-doc taking on the lead role can expect to be first author (talk to Jesús about it if you aren't sure). Jesús will typically be the last author, unless the project is primarily under the guidance of another PI and Jesús is involved as a secondary PI – then Jesús will be second to last and the main PI will be last. Students and post-docs 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. If a student or post-doc takes on a project but subsequently hands it off to another student or post-doc, they will most likely lose first-authorship to that student or post-doc, unless co-first-authorship is appropriate. 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.

Please check the "Authorship Determination Scorecard" to decide who deserve authorship on the research project and the order of authorship here. You may also read the "Tips for Determining Authorship Credit" here.

Human Subjects Research

Adherence to approved *"Comité de Ética de la Investigación"* (CEI) of the Universidad Rey Juan Carlos protocols which you can (and must) read about here is *essential*. All research group members must read the CEI information provided here. If you do not have the CEI approval, you cannot run participants, look at the data, analyze the data, or be in any way involved with the project.

You *must* ensure that you have CEI approval to run your study before you begin (which means that you either submitted a CEI protocol that got approved, or your name was added to an existing or amended CEI).

Research Group Resources

<u>Web</u>

The research group web (https://grupoimei.weebly.com), well, a web for the group. It has all of the information you need to get started. Email Jesús when you obtain information that will be useful for others to know or any new publications! Ask Jesús to be added as a member.

<u>E-mail</u>

We have a research group listserv for sending e-mails to the entire research group when necessary (gr_inv.imei@urjc.es). People often contact the research group (e.g., if interested in participating in studies) through that email address.

General Policies

<u>Hours</u>

Being in the university 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 Netflix). My primary concern is that you get your work done, so if you find that you are more productive at home (research group mates can be chatty sometimes), feel free to work at home – but you can't do this all the time, and I expect to see everyone on a regular basis (but see <u>Noise Policy</u>).

<u>Noise Policy</u>

I love that research group members get along and want to spend time with one another. This is a critical aspect of a productive, friendly, and positive research group environment. But I also realize that you are all very busy and want to have a place to focus and work quietly.

Motivated by the concerns of some research group members, and in conversation with them, we have devised a set of policies so that you can all work effectively. These policies do not preclude socializing at specific, agreed-upon times (e.g., lunch, happy hours); in fact, we encourage you to! These policies also do not preclude meeting with one another to discuss research, classes, life, etc; again, we encourage you to! But keep these policies in mind:

Policies
1. <u>General quiet time</u>: Please respect other people's needs to work quietly by lowering your voice and generally keeping noise to a minimum. If you do need to talk, do it quietly and/or set up a meeting in a room with closed doors.

2. <u>Headphone rule</u>: If someone is wearing headphones, respect their need for quiet. Do not tap them on the shoulder to talk. Do not talk loudly next to them. Exception: if there is a fire alarm or other emergency and they are not aware, do alert them for their own safety.

3. <u>Flexible work locations</u>: Feel free to work from home, a library, or anywhere else when Policies 1 & 2 aren't enough, or you just need a day of privacy. With respect to working from home: it's nice having people around to help each other and for us to talk in person, so do not work from home *all* the time, but do so when you need to.

<u>Meetings</u>

Monthly Research Group Meetings
Monthly research group 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 group meetings can also be used to talk about methods, statistical analyses, new papers, and career development. For paper discussions, everyone must come to the group 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 the group meeting having read your paper and be prepared to summarize it for the group.

Each trainee (students, post-docs) 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. Research group members are also expected to attend every meeting (obviously, illnesses, doctor appointments, family issues, etc are a valid reason for missing a meeting). We will also use research group meetings (or *ad-hoc* scheduled meetings) to prepare for conference presentations and give people feedback on job talks or other external presentations.

Individual Meetings
At the beginning of each semester, we will set a schedule for monthly meetings. Each full-time research group member (graduate students, post-docs) will have a one-hour slot set aside to meet with Jesús. If scheduling conflicts arise (e.g., because of travel), we can try to reschedule for another day that month. If there is nothing to discuss, feel free to cancel the meeting or just drop by for a brief chat.

<u>Deadlines</u>

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 <u>as soon as you know when a deadline is</u>, and make sure they are aware of it the closer it gets. Don't be afraid to bug them about it (yes, bug Jesús as well).

Give Jesús 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 Jesús *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).

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

<u>Presentations</u>

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. Additionally, every time you present your work, you are representing not just yourself but the entire research group.

It is therefore highly encouraged that you seek out opportunities to present your research, whether it is 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 practice presentation to the research group at least one week ahead of time (two weeks or more are advisable for conference presentations). Practice talks will help you feel comfortable with your presentation, and will also allow you to get feedback from the research group and implement those changes well in advance of your real presentation.

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.

<u>Data Management</u>

Storing Active Datasets
Make extra backups! Each research group 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 Dropbox 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.

Archiving Inactive Datasets
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 an

external hard drive. Second, upon submitting a paper to a journal, all datasets and code must be publicly shared. This can be done on OSF, GitHub, OpenNeuro, or other platforms. Finally, after a project is completed and the paper published in a peer-reviewed journal, move the project to the archive.

Open Science

We're all for open science, so research group members are encouraged to share their code and data with others. But do not share your code or data with the outside world until you think (and Jesús agrees) that the research group 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](#), and the best option for sharing MRI datasets is [OpenNeuro](#) (let the research group know if you find others).

We will also share our work with the world as soon as we ready! The research group policy is to put links (and share PDFs if journal policies allow) of all our papers on the research group website, social and professional networks for scientists, such as ResearchGate.

Funding

Funding for the research group currently comes from IMEI' start-up package from Universidad Rey Juan Carlos.

At some point, you will likely be asked to provide a figure or two for a grant Jesús is writing, and/or provide feedback on the grant. Aside from being a good opportunity to learn how grants are written, this will also allow you to see his vision for the research group in the years ahead.