Expectations

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Conceptualization & Design: Contributed to formulating the research question or methodology.
Data Collection & Analysis: Played a substantial role in collecting, processing, or analyzing data beyond routine work.
Interpretation of Results: Assisted in interpreting findings and providing critical insights.
Writing & Revising Manuscript: Drafted portions of the paper or made substantial edits beyond proofreading.

1 Authorship

There are five key parts of a study:

1. Idea generation: Contributed to formulating the research question or methodology (ex., attending lab/group meetings and giving feedback on ideas).

2. Funding (ex., assisting on grants, giving feedback on grant ideas)

3. Data collection (including cleaning and curation): Played a substantial role in collecting and processing the data beyond routine work.

4. Analysis and Interpretation of Results: Assisted in analyzing and interpreting findings and providing critical insights (i.e., helping to write the code to conduct the statistical analyses).

5. Writing & Revising Manuscript: Drafted portions of the paper or made substantial edits beyond proofreading.

A good rule of thumb is a coauthor must be involved in at least three of the five pieces. It is widely acknowledged that underrepresented groups in science are coauthored less because their contributions are not as easily valued or apparent. Lab members are encouraged to keep this in mind when considering the contributions of others, and also when advocating for their own contributions.

We are part of community and should freely help each other whenever appropriate, i.e., bounce ideas off each other, ask for help with code, ran a statistical analysis by someone. That being said, it is important to discuss coauthorship early and often. Be upfront about:

1. Your interest in a project

2. What you can contribute "freely" (i.e., without coauthorship)

3. What level of involvement you believe warrants coauthorship (i.e., I am happy to brain storm an analysis with you, but if I am developing code with you I would like to be more fully involved in the project and be coauthored).

If a person only performed routine tasks (e.g., data entry, standard lab procedures) without intellectual input, they should instead be acknowledged in the paper but not listed as an author.

1.1 Undergrad and technician coauthorship

Authorship for undergrands and technicians can be helpful to their careers, but the came criteria apply. Best practices include:

1. Early and Transparent Discussion: Set Expectations: Discuss authorship criteria with undergrad research assistants (URAs) and techs early in the research process so they understand what is needed to qualify.

2. Mentorship & Inclusion: Encourage URAs and techs to engage in higher-level thinking and analysis to give them opportunities for authorship.

3. Acknowledgment vs. Authorship: If a URA made minor contributions (e.g., performing lab/field work under supervision without independent intellectual contributions), they should be acknowledged rather than listed as an author. If their role grew over time and they contributed substantially to intellectual aspects, they should be considered for authorship.

4. Consensus Among Co-authors: Final decisions should be made collaboratively among all co-authors and supervisors to ensure fairness and adherence to ethical guidelines.

2 Reproducibility

We are committed to using the best practices in scientific computing and reproducible science. All the materials needed to reproduce the study entirely (from data collection to analysis), must be make available publicly and associated with all publications. This includes:

1. Curating all data in a relational database where automated data cleaning is conducted that is version controlled, including a record of any changes to the data and the raw data is never altered.

2. Version controlling and posting all protocols (collection, molecular, etc.) publicly, and associate each protocol DOI with its corresponding publication.

3. Version control all analytic code. Final products will be executable from a single script with an explanatory Rmarkdown file, publicly available and associated with corresponding publication.

4. Post all final data publicly.

3 Data management

All lab members are responsible for the curation of the data they collect. The lab's data management protocol is:

1. Data will first be entered from field sheets into a spreadsheet on google drive or dropbox. All data must be stored in the cloud (shared with the PI) and not on a personal computer.

2. We will use R (or programming language of your choice) to check each datasets fields for consistency and typographic errors and output the cleaned data files for analyses. Once the raw data is entered it is downloaded as a ċsv file, and cleaned and assembled using R protocols, while never transforming the original Google spreadsheet. All code for cleaning data will be version controlled on Github so there is a record of any changes made to the data.

3. Data will be posted along will accompanying code for all publications.

4. If a lab member has left the lab/is not making progress on a lab-funded project for 3 months, the ownership of the data returns to the lab. All thesis chapter(s) must be submitted for publication before graduating.

4 Science communication

All lab members will strive to communicate their research to a non academic audience at least once a year (i.e., blog for National Geographic, presentation at the Entomology fair, presentation to a school group etc.).