



## The Agroecology Lab: Code of Conduct

*Last updated May 2023*

The Agroecology Lab at the University of Maine is an interdisciplinary group of faculty, post-docs, staff, graduate and undergraduate students, and affiliated cooperators. Our group is committed to conducting research and outreach that serves communities, with a special focus on the intersection between natural resource use (agriculture and forestry), human dimensions of natural resource use, and complex challenges such as climate change, food insecurity, and environmental contamination.

Our work is grounded in the complementary traditions of *agroecology* and *participatory action research* (PAR), meaning that we work with stakeholders and partners to identify problems that require research and action, and contribute our resources and time to solving these problems. As agroecologists, we look at systems-level relationships between plants, animals, insects, people, abiotic elements (e.g., rainfall, temperature, climate change), policy, and governance.

This document has been developed collaboratively by members of our group, and is a living document. We commit to reviewing it on an annual basis, and updating as necessary. Here, we lay out guidance for how we strive to conduct ourselves as members of the Agroecology Lab, scientists, citizens, and humans.

### **How to use this code of conduct:**

- Lab members should read (or re-read) this document before starting a research project;
- reread relevant sections prior to starting a new phase of the research process;
- reread, and make comments to improve the code of conduct based on your experience, before leaving the lab along with a group debrief.

**Key words:** Professionalism, inclusivity, collaboration, ethics

## **Contents**

- I. [Acknowledgements](#)
- II. [Philosophy](#)
- III. [Interpersonal Conduct](#)
- IV. [Research Conduct](#)
- V. [Lab Departure](#)

## I. Acknowledgments

The University of Maine recognizes that it is located on Marsh Island in the homeland of the Penobscot Nation, where issues of water and territorial rights, and encroachment upon sacred sites, are ongoing. Penobscot homeland is connected to the other Wabanaki Tribal Nations — the Passamaquoddy, Maliseet, and Mi'kmaq — through kinship, alliances and diplomacy. The university also recognizes that the Penobscot Nation and the other Wabanaki Tribal Nations are distinct, sovereign, legal and political entities with their own powers of self-governance and self-determination. The University of Maine System and the Penobscot Nation have signed a Memorandum of Understanding ([PDF](#)).

Our group acknowledges that naming the historical relationship between the University of Maine and those Tribal communities who call Marsh Island home is not enough. Inexcusable injustices have been experienced by both the Tribal communities of Maine and those whose [land was taken from them](#) to raise funds for Morrill Act endowments. Our group commits to further interrogating our positions of privilege and power, and going beyond land acknowledgements in our work to envision a future that is more just, fair, and honorable.

In developing this Code of Conduct, we have drawn upon the prior work of several other labs both at the University of Maine and other institutions of higher education. We specifically found inspiration in the work of:

- [The Weecology Lab](#) at the University of Florida
- [Conservation Irrigation Lab](#) at the University of California Davis led by Mallika Nocco
- [The Social Sustainability of Agriculture and Food Systems Lab](#) led by Jennifer Jo Thompson at the University of Georgia
- [The Code of Conduct Templates](#) curated by Daniela Saderi, Co-Founder & Director | or [PREreview](#)

## II. Philosophy

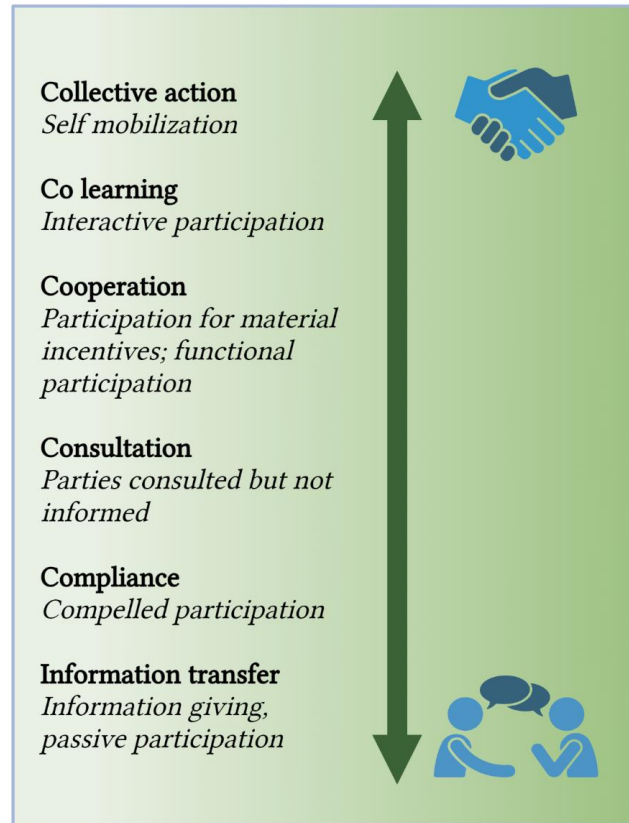
We are committed to conducting ourselves with professionalism, integrity, and respect. We strive to create an inclusive and just community that produces high quality, useful, usable science in a safe environment. We are committed to creating a community that values diverse opinions, perspectives, and experiences. We work to make sure that we support one another through helping out when help is needed, working through conflict using clear communication and creative problem solving. These principles manifest differently for every project, but are integrated intentionally in each lab member and team's work.

Our work is rooted in the complementary frameworks of *agroecology* and *participatory action research* (PAR). Our lab's working definition of *agroecology* is the application of ecological principles to the practice of agriculture, forestry and landscape management. Our agroecological research spans social and natural sciences. Specifically, we take a social-ecological systems approach to studying interactions at different levels including plot/parcel,

farm/forest, community, region, national. We work towards producing actionable science for both conservation and working landscapes.

Each project conducted by members of the Agroecology Lab is informed by PAR. It is important to note that each project requires a tailored approach, and stakeholder participation can occur anywhere along the continuum of participation. While some projects may require only passive participation (e.g., information transfer) others may be opportunities for self-mobilization (e.g., collective action). Other projects may require an approach somewhere between these two ends of the spectrum, or may require different levels of participation from stakeholders at different points of the project lifecycle. Members of the Agroecology Lab are encouraged to reflect upon projects at the beginning, middle, and end of this lifecycle, and ask themselves if the communities they work with would benefit from a different level of access and participation. We strive for the greatest degree of participation that is both feasible and desired by our community partners.

## Continuum of Participation



Adapted from Kindon, Pain, and Kesby (2010)

### III. Interpersonal Conduct

In the Agroecology Lab, we work together to create a positive professional environment. Examples of behavior that contributes to the type of working environment we strive for:

- Using welcoming and inclusive language;
- Being respectful of differing viewpoints and experiences;
- Gracefully accepting constructive criticism;
- Kindly offering constructive feedback when asked;
- Focusing on what is best for the community;
- Showing empathy towards other community members;
- Offering assistance when requested and when possible;
- Elevating each other and speaking well of one another;
- Be a good team member when working on collaborative projects;
- Caring for others and self.

Examples of unacceptable behavior that could degrade our working environment or relationships:

- The use of sexualized language or imagery and unwelcome sexual attention or advances;
- Trolling, insulting/derogatory comments, and personal or political attacks;
- Public or private harassment;
- Retaliation;
- Publishing others' private information, such as a physical or electronic address, without explicit permission;
- Publishing or sharing others' work or data without seeking permission or inviting collaboration;
- Other conduct which could reasonably be considered inappropriate in a professional setting;
- Racist, sexist, ableist, or other discriminatory language.

This Code of Conduct applies both work within our group, and work with collaborators of all types and in all contexts. Agroecology Lab members will strive to follow this Code of Conduct when representing the lab in person, online, in print, on social media. Lab members are expected to uphold the expectations outlined in Interpersonal Conduct in all research environments, including but not limited to campus laboratories, Roger Clapp greenhouses, MAFES research farms, Extension spaces, and farms not owned by the University.

Instances of abusive, harassing, or otherwise unacceptable behavior as listed above may be reported by contacting the head of the Agroecology Lab ([rachel.schattman@maine.edu](mailto:rachel.schattman@maine.edu)). All complaints that fall under the purview of Title IX will be reviewed, investigated, and addressed following [UMaine Policy Manual Section 402: Sex Discrimination, Sexual Harassment, Sexual Assault, Relationship Violence, Stalking and Retaliation and Title IX Sexual Harassment](#). All other interpersonal conflicts will be mediated by Dr. Schattman, or in the case where the student prefers an outside mediator or in cases where Dr. Schattman is not impartial, Anila Karunakar of the [UMaine Multicultural Student Center and the Office of Diversity and Inclusion](#): ([anila.karunakar@maine.edu](mailto:anila.karunakar@maine.edu)). Mediation is voluntary, confidential, flexible, and based on consensus decisions. Through mediation, we seek to minimize harm and maximize gain for all parties involved. We commit to listening to all sides of an issue, exploring parties' perspectives, building agreement, developing closure, and following up as needed.

#### **IV. Research Conduct**

The Agroecology Lab takes a transdisciplinary approach to investigating scientific questions in agriculture contexts. The following section outlines principles and practices tailored to both biological and social science projects. In all aspects of our research conduct, we commit to upholding professionalism and quality. Guidance on research conduct also applies to professional spaces in which we process data, analyze and share results, and present our findings.

Depending on our role in the Agroecology Lab, we may have different goals, needs, and abilities. It can be helpful to be clear about our various roles and responsibilities when working together. The following table describes the roles and responsibilities of different lab member positions, in alphabetical order.

Position	Roles and responsibilities
Graduate student	<p><b>Experimental design:</b> Identify research questions and protocols well suited to address them under the guidance of the PI and committee members. Identify needed materials and supplies and potential funding sources. Lead development of standard operating procedures (SOPs), with support from the PI and lab manager.</p> <p><b>Data collection and analysis:</b> Assume primary responsibility for all data collection related to your project. Delegation to undergraduate research assistants or other team members is acceptable, but data quality must be verified by the graduate student in charge of a project. Follow data collection protocols and archiving practices as described in this Code of Conduct. Conduct data analysis both independently, and in consultation with the PI and committee members, as appropriate.</p> <p><b>Writing and sharing results:</b> Submit and defend a final thesis/dissertation. Work with the PI and other collaborators to submit to scholarly journals. Share results back to any participants in your research project in a form and format that is meaningful and useful to those individuals. Participate in community presentations and activities related to your project.</p> <p><b>Provide feedback to and participate in the lab community:</b> Contribute to group projects (we love to hear your voice and hear your thoughts), attend lab meetings, join us for lab events and excursions when possible. Provide lab members with critical feedback on papers, presentations, and other scholarly projects when requested. Assist with field work on projects (other than your own) when requested and when possible (help each other!). Mentor undergraduate lab members by providing them with guidance, feedback, advice, and by listening to them. Actively seek mentorship that helps you meet your professional goals from the PI, your committee, and others.</p> <p><b>Community engagement:</b> Engage with stakeholders who are involved in your research area. Interact with stakeholders outside of research activities by attending events, subscribing to relevant periodicals and publications, reading work by members of this community, etc. Engage with the University community.</p> <p><b>Meet all program requirements:</b> Develop a committee in semester 1 (M.S. students) or 2 (Ph.D. students), complete a thesis proposal and present to the committee, complete the program of study form prior to the first committee meeting; complete class and research credits by the end of the last semester; complete at least 1 community presentation in addition to the thesis/dissertation defense; complete and present your thesis/dissertation; meet with program coordinators in the last semester to ensure all program requirements have been met.</p>
Lab manager	<b>Management:</b> Compliance, inspections, protocols, experiments, data, and

	<p>oversight of employees/interns at the discretion of the PI.</p> <p><b>Operations:</b> Inventorying, ordering, and coordinating lab/equipment use. Coordinating undergraduate research and graduate research activities during summer field seasons.</p> <p><b>Training:</b> Create and deliver training on protocols, equipment, software, and supplies. Maintain training documentation.</p> <p><b>Safety:</b> Update safety documents and enforce safety, conduct training and update policies as needed. Conduct annual chemical safety plan updates and chemical inventories in coordination with PI and UMaine Chemical Safety Officer (Peter Snow).</p> <p><b>Maintenance:</b> Overseeing cleanliness and organization of the Lab (204 Deering) and MAFES farm research plots (the Wyman's Center, Rogers Farm storage area and experimental plots). Maintain equipment and instruments.</p> <p><b>Research support:</b> Give audience and feedback; participate in writing, publications, and presentations (project specific). Further support at the discretion of the PI.</p>
<p>Post doc</p>	<p><b>Experimental design:</b> If time allows, identify research questions and protocols well suited to address them in collaboration with the PI. Identify needed materials and supplies and potential funding sources. Lead development of standard operating procedures (SOPs), with support from the PI and lab manager.</p> <p><b>Data collection and analysis:</b> Assume primary responsibility for all data collection related to any project you lead. Delegation to undergraduate research assistants or other team members is acceptable, but data quality must be verified by the post doc in charge of a project. When assisting other lab members with data collection, follow SOPs and guidance provided by the project lead. Follow data collection protocols and archiving practices as described in this Code of Conduct. Conduct data analysis both independently, and in consultation with the PI and other collaborators, as appropriate.</p> <p><b>Writing and sharing results:</b> Work with the PI and other collaborators to submit to scholarly journals. It is expected that post docs will <u>lead</u> at least 2 scholarly publications per calendar year, and contribute to others led by the PI and other collaborators. Share results back to any participants in your research project in a form and format that is meaningful and useful to those individuals. Participate in community presentations and activities related to your project.</p> <p><b>Provide feedback to and participate in the lab community:</b> Contribute to group projects (we love to hear your voice and hear your thoughts), attend lab meetings, join us for lab events and excursions when possible. Provide lab members with critical feedback on papers, presentations, and other scholarly projects when requested. Assist with field work on projects (other than your own) when requested and when possible (help each other!). Mentor graduate and undergraduate lab members by providing them with guidance, feedback, advice, and by listening to them. Actively seek mentorship that helps you meet your professional goals from the PI and others.</p> <p><b>Community engagement:</b> Engage with stakeholders who are involved in</p>

	<p>your research area. Interact with stakeholders outside of research activities by attending events, subscribing to relevant periodicals and publications, reading work by members of this community, etc. Engage with the University community.</p>
<p>Principal investigator</p>	<p><b>Leadership:</b> Set lab research and outreach directions including identifying overarching research questions in collaboration with community partners or other scholars, define or approve scope and parameters of research, lead or approve project conceptualization. Fundraise for research and outreach projects, student support, staff salaries, etc. Set standards for research and outreach. Perform administrative duties per University and funder requirements.</p> <p><b>Supervision:</b> Oversee staffing and hiring, coordinate teams with the lab and with outside collaborators, provide mediation services as needed or connect the team with outside mediators, and ensure professional standards are met by members of the lab community.</p> <p><b>Mentorship:</b> Support the professional development of all team members, connect lab members to opportunities beyond the lab that lead to future professional opportunities, facilitate networking opportunities or skill development.</p> <p><b>Coordination:</b> Maintain relationships with partners inside and outside of the lab, facilitating learning opportunities that leverage these relationships, ensure that team members have the resources they need to succeed in their research and outreach endeavors to the extent possible.</p> <p><b>Scientific engagement:</b> Lead and participate in experiments and studies, including design, project execution, oversight of technicians and students. Collaborate or lead analysis, write scholarly papers and outreach documents for non-academic audiences, conduct presentations.</p> <p><b>Community engagement:</b> Engage with stakeholders and partners who are involved in research conducted in the lab. Interact with partners outside of research activities by attending events, subscribing to relevant periodicals and publications, reading work by members of the community, etc.</p>
<p>Undergraduate student</p>	<p><b>Research support:</b> Work with members of the lab to complete assigned research activities including experimental installations, data collection, analysis, and sharing of results. Strive to complete these tasks to the best of your ability and with a high degree of integrity. Seek to understand the full picture of the research you are engaged in. Complete background readings on the topics of the research. Ask questions of graduate students, the lab manager, PI, and/or post docs.</p> <p><b>Community engagement:</b> Participate in lab meetings and project meetings. Contribute to group projects (we love to hear your voice and hear your thoughts), attend lab meetings, join us for lab events and excursions when possible. Provide lab members with critical feedback on papers, presentations, and other scholarly projects when requested. Engage with stakeholders who are involved in your research area. Interact with stakeholders outside of research activities by attending events, subscribing to relevant periodicals and publications, reading work by members of this community, etc. Engage with the University community.</p> <p><b>Invest in your own professional development:</b> Seek mentorship from</p>



	community members that helps you to advance your professional goals. Participate in learning opportunities including and beyond traditional classroom experiences. Seek out opportunities to develop your skills and proficiencies. Request and respond to critical feedback from community members in the lab.
--	---

Where roles and responsibilities on a particular project are unclear, it may be useful to create a collaboration contract for a specific project. A template for this type of contract will be developed and included as an appendix in this code of conduct at a later date.

*Guidance for engaging in professional and high-quality research:*

- Commit to your research and take responsibility for your role in the research process;
- Engage in your profession through joining professional societies, contributing to disciplinary or interdisciplinary communities, and acting in service to others;
- Represent the lab well when working or presenting on campus or off campus;
- Never falsify data or present results that you know are based on suspect or inaccurate data;
- All Agroecology Lab scientists are encouraged to reflect on where on the [continuum of collaboration](#) their project exists;

*Guidelines for use of physical lab spaces, research farms, and other research sites:*

- Only Agroecology Lab members are permitted to use the lab unless otherwise discussed with the Lab Manager (Holt) or Lab Director (Schattman);
- All users of the lab should be up to date with relevant safety trainings, and all safety training certificates should be on file with the Lab Manager (Holt), as detailed in the [Agroecology Lab Handbook](#);
- Individuals conducting lab work should not be disrupted unless it is an emergency;
- Standard Operating Procedures (SOP) should be created and used for all lab processes. One copy of the protocol should live in the lab (on paper), and one copy should live with the person conducting said procedure. Additionally, all SOPs should be stored in the lab Google Drive folder labeled [Lab Procedures SOPs](#).
- Researchers should label all containers and samples using the following naming convention: Date/ Time of data collection /Name of individual doing the collecting /Contents /Project /Sample ID. Other labels may also apply such as site, replicate, time, storage, and application info. When possible, containers should be pre-labelled to avoid

errors in the field. All samples should be recorded in a data sheet with corresponding label and location;

- If a student or employee is working on data collection, the first sample should be collected with the lab manager (Holt) or Lab Director (Schattman) to ensure standardization;
- Lab should be restored each time it is used to maintain order and cleanliness for future users;
- Lab members are accountable for the condition of all field equipment. Tools borrowed for field work must be returned clean and in good condition;
- When working in greenhouse spaces, doors should always be closed to maintain the internal temperature of the greenhouse and to prevent harmful rodents such as squirrels from destroying the plants;
- All equipment used in field or greenhouse experiments should be regularly cleaned and sanitized to prevent the survival of harmful pathogens;
- New plants must be visually inspected for signs of disease infection before being introduced to the greenhouse or transplanted into the field.

*Guidelines for data management in the natural sciences:*

- Identify what data you will collect at the outset of your experiment;
- Create physical datasheets to take into the field, and store these datasheets in a weather-proof vessel (the lab provides plastic clipboards) or use a Rite in the Rain notebook;
- Prior to data collection, notify the lab manager (Holt) that data collection will begin;
- At the end of a data collection period (one day or shorter), sign and date the datasheet, take a photo or [scan a PDF](#) of each datasheet and send it by email to the Lab Manager (Holt) for archiving;
- At the end of each work week, submit all paper copies of data sheets to the Lab Manager (Holt) for archiving. Holt's office is 108B Deering, or you can leave the data sheets in her mailbox in the Deering mailroom. Original paper data sheets will be filed by Holt in the gray filing cabinet in Deering 204;
- A copy of the raw data file should be preserved separately from the working data;
- Maintain [metadata](#) for each project, including a narrative and a data dictionary;

- Prior to leaving the lab (at the end of your program or when your employment period concludes), arrange an exit meeting with the Lab Manager (Holt) and Lab Director (Schattman) to ensure that they are aware of where and in what format all data is stored.

*Guidelines for conducting social science research:*

- All social science research must be approved by the [University of Maine IRB](#) office or similar body and all IRB protocols must be followed including confidentiality, anonymity, etc. IRB applications should be saved in our [shared google drive folder](#) for the benefit of the group. The approval process helps to ensure that all Lab members are complying with human subject protection measures and meeting agreed upon ethical standards for protecting your research participants. The existence of this process is important to maintaining public trust in research ([USHHS 2023](#)).
- The Agroecology Lab Director (Schattman) should be listed as the PI or Co-PI on all IRB applications generated by members of the Agroecology Lab, to ensure that access to raw and summarized data is maintained in the Lab after the lead graduate student or staff member has left their position. The Lab Director will ensure that data is archived in a secure format.
- All project collaborators who will have access to raw data must be current on all CITI training, and be listed on the relevant, approved IRB application. The Responsible Conduct of Research (RCR) training, and specifically the Social and Behavioral Research course, from the Collaborative Institutional Training Initiative (CITI program) are required.
- All research participants are to be treated respectfully, meaning we are mindful of their time and any costs to them associated with participating in Agroecology Lab-led research. When possible, we seek to provide monetary or other honorariums to research participants for whom spending time on our research means loss of income.
- All researchers should share back the results of their research with participants at the conclusion of the study. The method of “sharing back” should be tailored so that it is meaningful and useful to the research participants. Outputs may include but should not be limited to scholarly publications.
- We are clear about the value that participating in Agroecology Lab-led research brings to research participants, and celebrate the contributions we make to the communities of which we are a part. We ask communities that we work with for their input, and invite them to collaborate, early in the research process. We commit to using research tools to improve the lives of individuals and communities we work with.

*Guidelines for data management in the social sciences:*

- Identify what data you will collect at the outset of your project. Qualitative data includes interview transcripts, recordings, field notes, surveys, and summaries or documents used to organize data. Quantitative data includes survey responses or secondary data collected from other sources.
- Always store raw and summarized data in a secure, password protected, and/or encrypted location. Paper data and notes should be stored in a locked office and/or a locking file cabinet. Electronic data should be stored in a password protected and/or encrypted computer, hard drive, or cloud storage system. The data storage location must offer acceptable levels of encryption and IT support from the University of Maine, which is fulfilled by both OneDrive and Google Drive.
  - OneDrive: If you have sensitive files that need an extra level of security, use two-factor authentication (2FA) for individual folders or files or utilize the OneDrive personal vault, which offers a higher level of AES-256-bit encryption. Sensitive files include those where, if they were to be made public, the research participant would be negatively affected either through loss of personal wellbeing, financial losses, or damage to their reputation.
  - Google Drive: Does not offer 2FA or a personal vault for individual accounts, but does offer 2FA on your entire account. You can create encrypted documents for an added level of security.
- Maintain metadata for each project, including a narrative and a data dictionary or living codebook. A living codebook may include additional records which document decisions made throughout the life of the coding and analysis process either by one researcher, a pair, or a bigger team. For example, records could include codes that are deleted and why, coding disagreements and final consensus reached, and memos related to coding ideas in a place that can be saved with the project. More details can be found in Reyes et al. (2021).
- Files for a project should include: Inventory sheet (Excel sheet with project file names), metadata, master transcripts or other documents (unmanipulated or “locked”), and transcript or other document copies for analysis. Save files with (PROJECTNAME\_FILENAME\_YYMMDD) with the date of last edits.
- Qualitative data management needs to be well-documented and transparent. This is especially true when working in a team of two or more. Those embarking upon team research of a qualitative nature will find valuable guidance in Chapter 8: Qualitative Data Management of Guest and MacQueen (2008), which outlines principles for good team data management.
- Prior to leaving the lab (at the end of your program or when your employment period concludes), arrange a debrief with the Lab Manager (Holt) and Lab Director (Schattman)

to ensure that they are aware of where and in what format all data is stored. See [Section V: Lab Departure](#) for more details.

*Guidelines for publishing and authorship*

While scholarly manuscripts are not the *only* way that the Agroecology Lab shares the results of our work, publishing in scholarly journals is important for several reasons: Publications allow us to engage with other researchers and others who care about the important issues we work on. They are also the metrics by which some of us are evaluated in our current roles, or can make us more competitive for future employment opportunities both inside and outside of academia.

Publishing can be difficult to engage in as a beginning scholar. For that reason, our lab holds monthly 3-day writing retreats in the summer, which helps us engage with one another around our writing challenges and triumphs in a kind and productive way. We also encourage lab members to engage with other resources, such as the Fogler Library [Publish and Thrive](#) challenge.

The Agroecology Lab seeks to be inclusive and provide credit for diverse contributions to our work through publication authorship and acknowledgements. We have developed criteria for determining what qualifies a team member for authorship, drawing upon recommendations published by Cooke et al. (2021). These recommendations are an expansion of the *contributor roles taxonomy* ([CRediT](#)) system. Roles defined by this revised approach include:

<b>Term</b>	<b>Definition</b>
Conceptualization	Developing the core goals of a research project, contributing impactful ideas
Methodology	Development of methods and/or methodology, creation of conceptual models
Software	Software development or coding, programming, implementation of computer code used for analysis, testing code
Validation	Verification of data and/or analysis, double (or triple) checking results, double coding in qualitative analysis
Formal analysis	Statistical or qualitative analysis
Investigation	Performing an experiment, data/evidence collection
Resources	Providing study materials, samples, instrumentation, or computing resources
Data curation	Management activities including creation of metadata, data maintenance and archiving

Writing: Original draft	Preparation of the initial manuscript, including any translation
Writing: Editing and review	Critical review, commentary, or revision. Must be more substantive than copy-editing.
Visualization	Creation of figures, tables, or other data or conceptual visualizations
Supervision	Oversight of the project and the lab, including anyone with veto power over research activities. Mentorship.
Project administration	Management and coordination of research (planning and execution)
Funding acquisition	Fundraising for work that support the research leading to publication, including fundraising for student/employee salaries
Co-production	Involvement in the research process including identification of research need, data collection, interpretation, application of results in a meaningful and related manner.
Partnership development	Building relationships in a way that both establishes mutual respect and trust, and enables a research project founded in partnership and mutual benefit. May include creating the space for difficult conversations, sharing, and learning. May also include consultation on research questions and approaches.
Securing permissions and permits	Obtaining necessary permissions from land owners and/or rights holders, or permits for scientific collection, animal care, etc. Also includes creation of data sharing agreements.
Project sunsetting	Work related to removing experimental equipment and supplies from the research area and/or sharing results of the research back with participants and community members, thanking partners.
Team building and training	Engaging diverse teams and stakeholders to begin, conduct, or end the investigation. Facilitating the training needed for team members to complete research and analysis activities and community engagement. Making connections across academic and non-academic communities, including communication and translation across different knowledge traditions.

*This taxonomy was adapted from Cooke, Steven J., Vivian M. Nguyen, Nathan Young, Andrea J. Reid, Dominique G. Roche, Nathan J. Bennett, Trina Rytwinski, and Joseph R. Bennett. "Contemporary Authorship Guidelines Fail to Recognize Diverse Contributions in Conservation Science Research." Ecological Solutions and Evidence 2, no. 2 (2021): e12060. <https://doi.org/10.1002/2688-8319.12060>.*

To be considered for co-authorship, a team member or outside collaborator should have completed two or more of the above activities in a meaningful way. The lead author of a manuscript is responsible for notifying collaborators who *may* be eligible for co-authorship prior to the near completion of a manuscript, and inviting them to participate in drafting, editing, and reviewing the paper prior to submission. All listed authors on a manuscript are responsible for reviewing and approving the final submitted version of said manuscript. The lead author should seek to be inclusive whenever possible. Any collaborators who did not contribute to the degree that warrants co-authorship should be listed in the acknowledgements of the manuscript.

#### *Guidelines for archiving your data:*

After each research project is complete, the team who worked on it will need to make a decision about whether to publish the data in a repository. This decision should be made on a case-by-case basis, under the direction and advice of the Lab Manager (Schattman). Use this [list of repositories](#) collected by the Open Access Directory (OAD) to identify options.

[Examining Data Repository Guidelines for Qualitative Data Sharing by Antes et al. 2018](#) does a great job of highlighting the logistical, ethical, and legal matters surrounding the choice to share qualitative data and includes a systematic evaluation of the current guidelines for qualitative data repositories. In the article, they identify repositories that accept qualitative data, the process of data curation, and identify best practices for archiving and sharing data. This is an ongoing conversation, and storing qualitative data in a repository is still relatively uncommon. On one hand, publishing qualitative data sets can increase research transparency and integrity, allow for its use in meta-analyses or further studies, and allow students to utilize high-quality data sets when learning how to analyze qualitative data. On the other hand, qualitative data is often difficult to anonymize and contains sensitive details about private individuals. Sharing those details may counter protections offered in consent forms, and contextual details and personal relationships are important aspects of data interpretation that may be lost if the data is published in a publicly-accessible repository.

*In future iterations of this Code of Conduct, we will include a decision tree to assist project leads in their decision of where to archive their data.*

#### *Supporting one another*

- **Data buddies:** All researchers in the Agroecology Lab will be assigned one or two “data buddies”, who either collaborate with them on their research project or who are conducting similar research. Data buddies meet on a monthly basis to discuss the research process, show each other their data, and talk through any curation or analysis problems they are facing. This will ensure that our group both supports one another to learn better data management approaches, and holds each other accountable to best practices and lab requirements. Data buddy lighting talks will occur at least once a year, where Agroecology Lab members can discuss things they have learned from one another for the benefit of our larger group.

- **PI/Lab manager check ins:** All researchers working in our lab will meet with the Lab Director (Schattman) on a bi-weekly basis to discuss research progress. Team members should be prepared to discuss successes and challenges related to data collection, curation, and analysis. If in-person or Zoom meetings are not possible, Lab members are strongly encouraged to submit email updates and requests for input of guidance.
- **Mental and emotional load:** Collecting social science data from and/or with other people, especially through interviews or focus groups, can be an emotional experience for you as the researcher. Students conducting natural science projects may similarly experience exhaustion or be overwhelmed during a high-stress field season. Your research topic is likely an area you feel passionate about, and discussing it with others may feel both exciting, but also potentially draining or upsetting depending on the content. Self-care is critical to success. Pay attention to your emotional and mental load and health as you go through your project. Find times to take breaks from data collection and analysis. Communicate with your Lead-PI/advisor and/or other labmates to get support. [The Counseling Center](#) at the University of Maine is also free for students.

## V. Lab departure

When it comes time to leave the lab, each student and employee will have an *exit interview* with the PI (Schattman) to discuss their experiences and give feedback. In addition, each student and employee will have a *lab departure debrief* with the lab manager (Holt), PI (Schattman), and any other members of projects as appropriate **at least 2 weeks prior** to departure. If the student or employee is involved with more than one project, there will be separate debrief sessions for each project. This debrief will cover the following:

### *Project continuity*

- Determine tasks that need to be completed before the student/employee's departure;
- Delegate ongoing responsibilities to other team members for after the student/employee has departed;
- Define the student/employee's future role(s) and responsibilities (including timelines) as an external collaborator.

### *Data preservation*

Share a copy of all active and inactive files with the lab manager (Holt) and the PI (Schattman). Files should be archived in an active or archived project folder on OneDrive or Google Drive as appropriate. Files will likely include:

- Metadata documents;
- Published, working, archived, and raw datasets;
- Code used for analysis or data cleaning, in a format that is accessible to future project participants;
- Quality control documentation;



- Standard operating procedure (SOP) documentation;
- Previous version of output files including figures, summaries, and analysis.

All ownership of electronic files should be transferred to the PI (Schattman) and NOT remain in the student/employee's personal OneDrive or Google Drive accounts, as these will be deleted by UMaine after 30 days. The student/employee is welcome to maintain copies of all data and related documents after they have left UMaine, but the primary copies *must* remain in the PI's account. If future access to shared files is needed, use a long-term email address to stay connected to shared documents.

#### *Transfer of knowledge*

- *Technical skills:* For any procedures or methods where the student/employee is the *only* member of the lab with experience, a training session will be set up to ensure that this knowledge is transferred to other members of the lab community. It is the student/employee's responsibility to pass on all SOP's, methods, and pipelines (not recorded or explicitly documented in a metadata file or publication).
- *Relationships, including any community-based projects, or projects with a high degree of contact with funders and/or social science participants:* Depending on how involved the PI (Schattman) and other collaborators have been, the student/employee and the PI will discuss how to retain an open line of communication with community members, study participants, funders, or other stakeholders. This may include individuals or groups who may still be waiting for results to be shared with them. It is best practice to ensure relationships between those who provided their data and the lab to remain working and positive after the lab member departs.

#### *Return of lab property*

Return any lab property (ex. equipment, machines, tools, etc.) to the correct storage location. Inform the lab manager of all returned items and their location so that the lab inventory document is updated accordingly. If something has been lost or damaged, inform the lab manager as soon as possible so it can be repaired or replaced. *This includes any property borrowed from another lab/resource on campus or a collaborator.*

Pass on any manuals or instructions/advice on how to use, maintain, and service items. Communicate any upcoming or past due maintenance/services. If necessary, teach these skills to remaining members of the lab.

If loaned a computer or recording device for interviews, return your device and charger/cables to the lab manager (Holt).

Back-up all data from the device to another platform.

Remove any personal items, including: passwords, personalized security measures, autofill data, confidential records, sensitive information, or files not related to the Agroecology Lab.

*Do not* wipe the device's memory (except for removing personal items described above). *Do not* return the device to factory settings. *Let the PI/lab manager decide. If necessary, IT will perform these actions.*

Clean out your office space. Please be considerate of the next person needing that space.

Return all keys to the PI/lab manager/facilities management. If the PI/lab manager was issued the key(s) and then shared them with you, return the keys to the PI/lab manager. If the student/employee was issued keys directly, the student/employee is responsible for returning the keys to facilities management. Communicate any lost or defective keys to the PI/lab manager/facilities management as soon as possible.

Update contact information. It is important to stay connected! Please provide a long term email address and phone number. Access to UMaine-controlled services may be lost once the student/employee is no longer affiliated with the university, or once the university's contract with a service expires. Please note that according to current UMaine practices, students will retain access to their Gmail account for 5-year but employees will retain access to their Gmail account for only 4 weeks after departure. If you are both a student and a staff member, your student status will override your staff status. Students and employees will lose access to OneDrive after 30-days.

*The student/employee is expected to complete all of the tasks outlined above. It is the responsibility of the student/employee to accomplish these tasks and communicate any changes, issues, or concerns. All tasks should be completed in a thoughtful way, being mindful of remaining lab members and collaborators.*

## References

- Cooke, S. J., V. M. Nguyen, N. Young, A. J. Reid, D. G. Roche, N. J. Bennett, T. Rytwinski, and J. R. Bennett. 2021. Contemporary authorship guidelines fail to recognize diverse contributions in conservation science research. *Ecological Solutions and Evidence* 2(2):e12060.
- Guest, G., and K. M. MacQueen, eds. 2008. *Handbook for team-based qualitative research*. AltaMira Press.
- Reyes, V., E. Bogumil, and L. E. Welch. 2021. *The Living Codebook: Documenting the Process*

of Qualitative Data Analysis. Sociological Methods & Research (February 8, 2021):004912412098618.

## Appendix A: Metadata checklist

All projects conducted in the Agroecology Lab must include metadata. Below is a checklist for creating a metadata document. An example metadata document will be included in a future iteration of this Code of Conduct.

- Background
  - Project Title
  - Description (include collaborators, funders, grant award #s)
  - Originator
  - Project rationale (purpose)
  - Keywords
  - Beginning date
  - End date
  - Last updated/progress
  - Access constraints
  - Data rights
  - Point of contact
  - Publication date(s) & title(s)
  - Link to working documents
- Data quality
  - Methods
  - Variables definition & description
    - Type (continuous/discrete; nominal/ordinal)
    - Units
    - Instrument/device
  - *Who* will collect samples/data? QC?
  - Statistical analysis
  - *Where* will data be stored?
    - Primary location (working files, electronic)
    - Secondary location (raw files, electronic)
    - Tertiary location (raw files or data sheets, physical)
  - Distribution
  - References
- Project timeline