# Team Communication

## Macro

* **Set expectations**
  + co-develop a behavioral contract with my field crew
    - Ask crew members how you can be a good leader for them
    - Know what you want out of your crew (attitudes and level of work) and demand that from them while also remaining empathetic about their own personal struggles.
    - Write field season expectations document with statement on non-discrimination, harassment, etc. and include what to do in case of these situations
    - make a point to know crew members pronouns and any important aspects of their identities
    - share & discuss materials/research about how field experiences can differ for folks with different identities
    - set clear expectations about drinking
    - Be sure you address how you plan to deal with the local community when you make your plans, including any culturally sensitive topics on how you should dress or act.
    - Set expectations with field crew participants (perhaps by co-creating an agreement) about acceptable conduct at the beginning of the field season
      * Conduct field season expectations briefing and specifically address this section with field crew, request feedback
  + manage your own expectations
    - don't plan more work than you can reasonably accomplish in a day. It's better to plan to do less than you think you can accomplish and get more done than try to cram in too much work and feel like you've failed by not finishing what you set out to do.
    - check in to make sure expectations are reasonable
    - always remember that you are responsible for communicating your expectations clearly. Keep in mind that every person brings their own history to a learning experience so what is clear to you may not be obvious to them.
  + Clear communication of logistics of work
    - clearly communicate field plans, priority of tasks, the field environment including facilities (or lack thereof) and expectations (behavior, etc.).
      * This includes working hours, exactly what a typical day involves, and when breaks are expected. Do this all-in writing and verify your crew members have read it.
    - Ensure all crew members are aware of exactly kind of environment they're about to commit to and what the types of hazards are (if we're about to disappear off the grid for 3 weeks, you need to know that you can't call your family).
    - Make sure each crew member understands they are responsible for the safety of other crew members.
    - When it's good, it's good. When it's bad, it blows really really bad. Not everyone will be happy all the time.
    - Tell people it takes about two weeks for our bodies to acclimate to new environments. I worked in the hottest, most humid place for 13 months of my master's program and having that patience and perspective with my newer techs who weren't used to it yet helped a LOT.
    - Set clear policies around safety (will anyone work alone? who will carry radios? who can they come to if a community member or team member is making them feel unsafe?) and communicate these clearly.
      * Be very clear to the point of being mean when necessary ("We do NOT fuck around with the chainsaw." [say this before anyone touches the chainsaw])
  + take it slow, particularly on the first few days
    - Learning to lead/manage a crew is likely going to take up as much time as learning to do the rest of the study, so adjust expectations where needed
    - Initially, having a crew is extra work, not less work. When you're leading, you need to be both training and checking the work that gets done, so it'll feel like it's quicker and simpler to do it yourself anyway. Spend lots of time on the 'training' phase and verify that they know exactly what they're doing. The crew won't start taking stuff of your plate until you've shown them everything you know, so give it plenty of time. Afterward, if any of your crew is ambitious, you'll have a colleague, not an employee, and you can work on an equal footing, which is very relaxing. If your crew doesn't want the responsibility, you should at least have a competent worker and you can only check their work every once in a while. Always give opportunities for more responsibility, and encourage them to do more, more independently.
  + clear explanation of WHY we were doing everything we did
* **Set Norms**
  + create a non-judgmental conversation space where less experienced crew can ask questions about field gear/field safety stuff without feeling judged.
  + Establish a crew culture where inclusivity is prioritized
    - Be sensitive to cultural norms in interactions
  + meet with entire team to discuss a Community Agreement (to agree on behavioral norms for sleep, where to use the bathroom, communicating problems, etc.)
  + Share lab philosophy for supporting and respecting each other, including diverse perspectives and values.
  + Build a culture of checking on and taking care of one another. Making safety everyone’s responsibility.
  + lead the crew in developing, as a group, a written social contract around how to interact with and treat others, respect boundaries, etc., that everyone signs when hiring
  + Similar to physical, there needs to be a standard and culture of communication about communication style, boundaries/things people don't want to talk about, etc.
  + reminder that still members of the University (and all rules about harassment, violence, bullying, respectful behavior apply
* **Set Boundaries**
  + Do your best to become friends with your field crew, but also make sure not to forget that you're 'in charge' of them, and responsible for their safety and their work.
  + Make it clear you're the boss and not just a friend to complain to
  + Making decisions for the group and delegating tasks can feel 'bossy' and uncomfortable at first, but if you're conscious of your tone and remember to give positive feedback you shouldn't have to worry.
  + Make a mental note of where the professional/personal line is ahead of time and do not cross it. You can know someone well from fieldwork and shared quarters, have a pleasant and personable interaction, but not cross that line. I don't mean only for a romantic purpose or regarding harassment or any extreme case scenario like that, but also just how friendly to be with someone you are managing and whose respect you need to command at all times.
  + Remember that the physical safety of your team can depend on your ability to take this seriously. Not everyone will respect your authority if you are 'friends.' I tell my students we are 'friendly' but not friends as an example when I am talking to them bout mentorship, which helps to clarify bounds for them on both sides of their leadership structure.
  + Establish working, professional relationships with each member of the field crew
  + You don't have to be friends with your team, but everyone should feel like they can come to you with their questions or concerns.
  + Like it or not, being the lead means you're seen as the pro; if you don't know the answer, the best thing you can do is say, "I don't know, what do you think?" and workshop the answer from there.
  + Establish authority but try to be approachable for all questions - to avoid later issues and errors.
* **Determine common goals**
  + Discuss each member’s personal and professional goals
    - Allow crew to build experience in desired areas (e.g., teach an undergrad to trailer a boat); this builds pride and positive relationships while also developing skills useful to the campaign.
    - ask your crew and yourself what they/you are hoping to accomplish.
      * Mentoring-type contracts can be useful
  + I like to set a best case and worst case/minimum goal for what I will accomplish research wise.
  + including everyone in goal setting
  + setting clear/reasonable/detailed priorities
  + Talk to your crew, make sure they know what you need and what your goals are, but also listen to them and make sure you know their needs and goals and wherever possible do your best to make things align
* **Define Success**
* **prioritize physical safety/well-being over data collection** 
  + Make sure all crew members know that their safety is more important than the data, that everyone has an emergency number to call, and that they know that no one will be angry if they come back early.
  + if a crew member looks exhausted/overheated/etc. taking a break or ending the day early to ensure that all crew members understand the expectation that their health is more important than data/science
  + distinguish acceptable risk from unacceptable risk.
  + Emphasize that safety is more important than data, very regularly (e.g., multiple times during training, every time crew departs for the field). This empowers the crew to make safety-based decisions.
  + make decisions about safety group decisions - i.e., should we drive up or down this rough hill or try to find another way? Do you want to keep working in the heat or should we call it a day and head back to camp?
* **Hiring**
  + Hiring logistics
    - Make the interpersonal environment of your project clear on recruiting materials
    - Post your positions early
    - Pay as much as you possibly can to get the best applicants.
    - Find someone with lots of interviewing experience to ask about good interview questions and how to determine what a good tech looks like.
    - Interview prospective crew members multiple times
    - Openly discuss strategies for living in close quarters in the interview
  + Hire good (safe, inclusive, collaborative) people
  + Being transparent and honest with crew during hiring process
  + request to be involved in the selection process, you're the one who has to work with these assistants/undergrads after all
  + Find out about interpersonal skills, work ethic, emotional intelligence, practical communication skills, in addition to intellect and field skills.
    - You can often quickly train people to collect data, but you can't always train them to be team players, to like remote sites, or to be practical when confronted with field challenges.
    - Carefully select group members for respect and resilience.
    - better to have a cohesive team with flawed individuals, than a bunch of superstars who can't work together.
    - In this context, it can be ok to prefer hiring someone who you think will get along with the team (and is qualified) rather than the most qualified person. I would not say this in any other context, but often resources, physical space, and mental space are limiting. One person who clashes with the team can make things difficult for the whole team.
    - Interview references about each member's ability and willingness to work as part of a team.
      * include interview questions around if candidate has dealt with tough interpersonal dynamics before - look for red flags
  + Don’t hire your friends
  + talk about boundaries and personal health - if you can only work a certain number of hours a day, comfort with field conditions like uneven terrain or lightening
  + ensure folks hired for field crew are physically capable of common tasks
    - warn crews of physical fitness requirements for fieldwork
    - Exercise (especially strength training--rock climbing is great field prep; a lot of equipment is heavy and awkward, and no amount of knowledge or expertise will help you if you throw your back out in the wilderness).
  + Hire individuals with outdoor experience who enjoy being in remote areas.
* **Team Bonding**
  + Facilitate meetings with the team focused on building comradery (e.g., ice breakers, games, happy hour)
    - meet at least once but preferably multiple times to establish rapport
    - Have a gathering of the team (pizza is nice) to go over plans, the safety plans, gear lists, and opens up for questions.
    - Spend some time in the office with your crew; talk about personal stuff; get food together, or even better, cook for them.
    - Extra points for something fieldy
  + Be intentional about building an inclusive community
  + meeting the crew to talk through a community agreement (what are the shared behaviors that we agree are/aren't ok) can go a long way.
  + If you encourage a fieldwork culture where people are comfortable asking questions and aren't punished for making mistakes, where they know that you will listen to their concerns and have their well-being in mind, everyone will be happier, and your data will be of higher quality.
  + Interview crew members for their specific concerns; ask what they need to be successful (i.e., autonomy? direct guidance? advice on supplies? work in a team? working alone?)
  + support their long-term professional development.
  + Be kind, supportive, and understanding to you technicians.
  + Listen to everyone and do not invoke your hierarchical position to get things done, unless it's necessary
  + creating a strong atmosphere of collaboration and teamwork
  + empathy, compassion
  + Positivity / positive attitude
  + keep a good sense of humor even when a particular task sucks (ex. vegetation surveys in regenerating clearcuts!)
  + I think the key here was recognizing that everyone was going to feel tired and frustrated at points and allowing that to happen but keeping lighthearted conversation rolling or figuring out how to make things into ‘games.
  + Mutual trust and respect
    - deeply trusted all team members partly due to prior field working experience with most of them
    - Spending time upfront figuring out which people work well together
    - Trust them and build trust with them, give them grace but be clear about your expectations. Treat them like team members, not your employees.
    - Everyone was working their asses off in tough conditions, but we knew we could take breaks or ask for schedule changes for any reason and no one would be angry.
  + Schedule time for bonding explicitly
    - Foster a sense of community by doing wholesome, non-research activities together
    - Get to know your assistants ahead of time. Ideally in a short field-type setting.
    - Even a couple of hours in the field can often tell you who is going to be useful & who will fold up
  + Team camaraderie was incredible. A lot of luck in terms of meshing personality types. However, a productive, team-oriented, and efficiency-minded demeanor is a decision that each member must continue to prioritize in every moment of every day. Sometimes something happens that you can only laugh or cry about—effective team members must be able to laugh. Everyone felt a sense of personal investment/” buy-in.” Field leads were open to input and easily changed plans when faced with roadblocks or when crew members suggested efficiency tweaks to the plan. Leads understood well that “if you can do something about it, it’s a problem; if you can’t do something about it, it’s a parameter.”
  + Open lines of communication before the field season so that the crew leader and crew members aren't strangers on the first day of work
* **Team buy-in** 
  + Team members regarded each other as peers with common goals
  + Motivated field crew
  + Openness and generosity with participants
  + Shared division of labor
  + allowing crew members to feel a part of decision-making
  + The whole crew took ownership of the project and worked together to problem solve rather than relying on one specific person to fix everything
  + Transparency and collaboration build trust and enhances training for field crew members. As problems arise, discuss them with your team rather than trying to figure them out on your own without telling anyone. Let crew members see your process of inquiry and participate in troubleshooting.
  + Student researchers were able to take ownership of their projects from start to finish.
  + Be transparent
    - Take time to explain the study fully and answer any questions anyone may have.
    - make the 'bigger picture' clear to your crew - why is the work important? Why should they care?
    - In general, show your crew what you're doing and tell them why, even when you're doing admin work that doesn't really affect their job. They'll understand the project and what you're asking them to do much better. Always be willing to explain your reasoning and listen to suggestions. If they disagree even after you've explained, it's fine to take their suggestion, and it's also fine to say 'that would probably work, but I still want to do it my way, just because'
    - Make sure your team knows why you collect the data the way that you do- so they don't try to cut corners or change anything because they feel it’s more efficient or because that's what they did in a previous job. In the end you want good data, and your team is there to help you to collect/process/analyze that data in a scientifically sound way.

## Micro

* **Positive reinforcement**
  + I prioritize expressing appreciation and recognizing people’s contributions, which I think helps keep people positive and motivated, even under sometimes challenging physical conditions or when data collection doesn’t go well
  + treats!!!
    - do some fun things for the crew in addition to working hard - surprise them with a snack or drink they like in the field (I used La Croix and gluten free baked goods) during hitches, go out to dinner, etc.
    - Taking time outside of the workday to celebrate milestones as a group
    - celebrating small successes together with extra beer or an evening at a lake
  + Try to find ways to personally connect with each member of the crew, even if (and maybe especially) a crew member is a little difficult to get along with.
  + providing positive critique and feedback on work, as well as any areas for improvement
    - approach unmet expectations constructively
* **daily plan: clear and efficient work schedule for each day**
  + Plan a timeline from the beginning of the season
  + Don't make a tight schedule, include extra days in the planning in case of delays.
  + Involve everyone in the group in decision making regarding scheduling and workload when reasonable
    - get input from team members on meals/snacks
    - ask them for their input and ideas instead of being the all-powerful boss
    - people are more likely to be actively engaged if they feel like their opinions matter
* **Sufficient rest/breaks**
  + Check in on the basics- make sure everyone is doing what they need to do to take care of themselves (i.e. getting enough water, or sleeping okay); Pause and take time for rest, especially in less than ideal conditions; and this last one goes along with the previous point- if conditions aren't ideal or it's already been an especially hard/long day, check in with the crew and call it for the day if needed.
  + set working hours that do not involve extensive work in the heat of the day
  + time off during long field work (e.g., more than one week)
  + Making sure the field crew has time to eat meals so that their energy is not drained by the end of the day and given them notice if/when they should bring food.
  + encourage a culture of hydration and self-care rather than pushing beyond personal limits
  + if possible, it is best that the crew leader is not rooming with crew members especially if the crew leader has a different day off than the crew member. The temptation my crew leader succumbed to was to ask for work during my down time. I had nowhere to escape. It is important to understand that people need their off time.
* **Clear allocation of work and non-work roles**
  + delegate tasks and give clear, concise directions.
    - The crew is there to work for you, let them do their share of the job
    - Create systems and delegate responsibility to teammates within those systems
  + Clear hierarchy with ability to switch roles when needed
    - when possible, divide up tasks so that each person can work on what they find most rewarding or feel they are most competent in
    - leadership was rotated for different tasks giving all people agency over the field day/activity at some point in time
  + understanding where everyone's at and tailoring the field work to people's skills/ work ethic/ ability to withstand the elements, etc.
  + share responsibilities, particularly at camp (ex. cooking, prep, etc.)
* **PATIENCE**
  + A crew member doing something "wrong" is a teachable moment to explain methodological nuances etc., NOT a time to get upset or frustrated. General behavioral/personality patterns should be saved for after field season, e.g., if a crew member is sloppy with details but loves getting their hands dirty, make them the sampler and have someone else record the data (e.g.). But no one is served by a field lead saying, "you're bad at details," especially while in the field, and especially in front of other crew members. Patterns/issues that are pressing enough to address in the field should be done in private (no one feels they have time in the field for private conversations but if it needs to be done, it needs to be done right; doing it wrong can potentially make things much worse).
  + Forgiving/understanding mistakes
    - Supporting subordinates when they need it (i.e., after a mistake)
    - Having grace for people when they needed it.
  + Be patient with people but firm about safety
    - Be careful to discern when a mistake is a learning experience versus when it is serious enough to require correction.
* **Enforce boundaries**
  + maintain a professional environment
    - it can be hard, but the crew lead should base the amount that they talk about their personal life on how much the crew divulges, and they should shut down personal conversations if things get inappropriate or if it seems like someone is uncomfortable.
  + DO NOT HOOK UP WITH OR FLIRT WITH A CREW MEMBER. If necessary, talk about it before the campaign begins to address the necessary power dynamic and how it would affect other crew members (preferential treatment makes for bad vibes in the camp). Even if you flirted in the office, shut it down while you're out. You can pick it up in the off-season. Crew members hooking up or flirting with each other can be fine if they are mature about it and don't let it affect their work.
  + Leaders position themselves just slightly above crew members in the crew hierarchy - they know when to lead and they know when to be 'one of the crew' so that everyone feels comfortable and respected.
  + When you are responsible for other people, you have to take that seriously. This will probably mean making decisions about risk differently than you might for yourself.
* **Flexibility / adaptability**
  + allow for variability in the performance of your crew.
  + Be willing to be flexible with yourself and your crew members and field plans.
  + ability to problem solve when needed
  + Resilience and resourcefulness when the unexpected happens
  + There is no such thing as a perfect field season: Something will go wrong. Understand what can shift in your study and what cannot; prepare for alternatives if you can
  + Know that eventually the truck will get stuck or blow a tire, it’s just part of field work, make sure you have what you need to deal with it.
  + prepare for physical and emotional injury for yourself or others even though it is rare - you'll be in a better situation to respond quickly and appropriately
  + Plan time and space to reassess your procedures, progress and relationships part way through the season (individually and as a group
  + The most important difference I can make is listening to the people I'm working with and making changes as they prefer. The more comfortable they are in how they spend their day, the better the work will go, so I try to identify work and lifestyles early so I can plan accordingly.

# Honest Risk Assessment

## Macro

* **Safety protocol/plan** 
  + Go over plan with crew / distribute written plan
    - Get signatures on plan
    - Customize safety plans for members
    - Revise as necessary
  + Include written copy in each field vehicle
  + location/hours/contact info for hospitals/ERs
  + Know the location and phone numbers of the nearest tire shop, auto repair shop, gas station, grocery, and police station
  + If new to a field site/region - meet with people with experience at that site/region and ask for 'SOP' for field safety.
    - notify relevant authorities/landowners about field schedule/presence.
  + Include evacuation information
  + detail potential dangers/issues and how to avoid or deal with them, including not just natural issues (e.g., bears, poison ivy, ticks) but also people (e.g., poachers or illegal activity)
  + including information on bathrooming
  + Work with any safety staff at the lab/university to go over tasks and if they can go to the field and see conditions that can also help. They may see hazards you don't.
* **Reviewing "lessons learned" from other field leads from the year before**
  + Use existing or encourage your PI to write standard templates for safety plan and interpersonal safety (non-discrimination, harassment, etc.)
  + Ask your advisor for advice on what to do
    - ask lots of questions of your advisor/s and get a commitment from them as to whether they will join you in the field for any part of your work and how you will communicate with them when you need their input during the field season
    - If it's a new project, work together with them to develop a game plan. If it's an established project, ask about the pitfalls and communicate with the previous grad who ran the project when possible.
    - Experience and utilizing your own supervisors by asking for advice on how they would deal with a situation you’re dealing with. I wish I had been more upfront about my crew struggles with my supervisors so by the time my post interview came around it didn’t feel like a slap in the face to them.
  + Bring someone more experienced than you to bounce ideas off in the beginning. Then, when you know you will have fewer unknowns, bring those who are less experienced than you and share the joy of doing fieldwork with them. It will keep you motivated in your research, and studies show that undergrad research involvement keeps students motivated to pursue a STEM field.
  + Don’t rely on your PI to give you enough information or advice
  + If this is your first time doing a particular type of field data collection, ask an expert (your advisor, local collaborator, university faculty who teaches relevant course) to ideally join you in the field early on or walk you through it before you leave - particularly valuable for plant ID!
  + Talk to more experienced grad students in your lab about what did/didn't work for them, especially if you do field work in the same place- there might be little details (like, the housing at XX place is disgusting, or this place has great cheap field snacks and is right near our sites, or in July the black flies are horrendous for a couple weeks so make sure you have head nets) that they'll be the only ones who know
* **Identify potential sources of risk (physical/interpersonal)**
  + ensure field sites are safe to access
  + Visit field sites ahead of time
    - ground truth site without the pressure of conducting any data collection (though possibly include a test/run through of field methods).
  + Identify and plan for physical hazards
    - study local weather conditions and local hazards (ex. diseases, venomous animals, etc.)
    - Identify main roads, settlements, and 'trouble spots' for navigation, evacuation etc.
    - Gets familiar with local flora and fauna, noting anything potentially dangerous
  + Identify potential interpersonal hazards
    - Leaders should familiarize themselves ahead of time with potential issues that may affect specific members of their crew (ex. women, LGBTQ+, BIPOC, disabled technicians)
    - it's important when working with local crew members in another country or culture to be prepared for cultural differences, and differences in expectations e.g., around things like money; try to consider power differences and how those might affect interpersonal dynamics.
    - There are very serious challenges in field work settings that are experienced differentially by different groups of people. White men for instance may have real blind spots with how e.g., BIPOC feel in very remote situations. Likewise, not all field works situations are equally safe for all people depending on location. Formal structures to identify, understand, and mitigate these concerns are essential.
  + Gain some "big picture" knowledge of the field location before you go, including land use history, traditional and current landowners/managers and how you might develop relationships with them (including formal permitting requirements).
  + Get to know EVERYONE who works on your sites, talk to people and be curious about their jobs and ask about the area. Especially how the law enforcement operates and who to call or not call. Building a community helped me not only keep my team safe but helped me find reputable automotive repair shops, good restaurants, and increased joy exponentially.

## Micro

* **Daily check ins/debriefs** 
  + Monthly, weekly, and daily safety debriefs. Monthly to review big picture, weekly to go over activities for week and expected risks, daily to review specific site safety issues.
  + adjusting expectations with changed conditions
  + daily “stretch and share”: stretching during the safety meeting (each person leading a stretch while giving their safety concern)
    - include positive observations (e.g., talk about everyone's best moment/view/find of the day)
    - During our daily safety/stretch session, we also answer a daily question (suggested by a team member). It helps with group bonding
  + gentle correction of unsafe actions with clear explanations of what was wrong
  + correct/redirect promptly
  + Check in frequently on crew members physical and mental wellbeing.
    - Check in specifically about comfort levels at field station
  + Make time to talk and problem-solve with crew members in the workplace: 1) This gets the crew and the leader used to each other’s communication and problem-solving styles; 2) helps establish the level of self-reliance that the leader expects; 3) establishes an ethos of availability and willingness to help, as members can often feel intimidated and nervous to come to the leader. Actively invite crew to participate in parts of the planning process to provide both novel ideas, opportunity for critical thinking, and personal investment on the part of the crew member. Speaking to physical safety, data integrity, and interpersonal connections: anyone and everyone on the team should feel comfortable enough to say, "I don't know how to do that." This requires a culture that is intentionally established as such.
  + conduct risk assessment/check in with crew before engaging in higher risk activities.
    - talk about specific safety concerns as they are appropriate (e.g., a barbed-wire fence safety review if you know you'll be in an area with a lot of barbed-wire fences for the next few days)
  + Incorporate regular social interactions
    - Eating dinner as a team
  + Specific mental health checks.
  + Conduct mid-season check-ins with field crew on their interpersonal well-being, professional and personal goals
  + Check in with each field crew member mid-season; give them a place to voice concerns; listen to concerns and to what is going well-- adjust as needed
* **Monitor crew** 
  + Checking on well-being of individuals (heat stroke, frostbite).
  + taking time to monitor others working rather than focusing on your own work
  + Regular check-ins with all field team members re: physical condition, keeping days to a reasonable length (especially if driving significant distances or in difficult conditions
  + Know where people are / when they get back
    - keep physical sight of crewmembers if possible
  + constant safety vigilance
    - make sure everyone is accounted for at quitting time
    - decisions made on often an hourly basis that prioritize safety of crew
    - Take accountability and act when safety issue arises (commonly these might be ambiguous situations like weather conditions change, someone seems fatigued/dehydrated...)
    - constantly evaluate whether situations are safe and if they are not what needs to be done to make them safe (including leaving the site)
  + Be aware of crew interactions including body language
  + Make sure each individual feels empowered to say no when they are uncomfortable
  + Make decisions based on the least comfortable person on the crew
    - i.e., go back to the truck when a storm is coming in when the person who is most wary about lightening says let's go
    - avoid traveling in areas/ways beyond limits of “weakest” crew member
    - Keep in mind that some students' identities make them more vulnerable to harassment or violence from landowners and law enforcement. Especially if you do not share these identities, trust their guts--if anyone feels unsafe, you need to listen to that and take it seriously.
* **Buddy system**
* **Model behavior** 
  + model safe and healthy working habits
    - Be an example by taking breaks for hydrating, eating, wearing sunscreen, and resting if needed and adhering to safety protocols at all times
  + Emphasize the importance of respect
    - Remember that as a leader, your words carry weight: do not joke about safety or harassment in front of your crew. Your actions speak even louder: respond to even small issues as though someone watching is deciding whether you can be trusted.
    - Take all safety concerns seriously, even small offhand comments. Ignoring small comments makes it less likely that someone will speak up in a higher-stakes situation
  + accommodate crew preferences over your own where possible.
  + model open and honest communication
  + admit when you make mistakes
  + Be receptive to feedback, not just for them but yourself.
  + Guaranteed, you will make mistakes. That's ok. Learn from them, fix them, and move on. Field season (and your crew) can't wait for you while you feel bad about yourself.
  + You are the anchor for team culture; people who feel good make a team that works good.
    - maintain your composure- the crew is looking to you for leadership and will feed off your energy.
  + know how to do the field work before you teach the crew or go in the field
    - There’s nothing more frustrating than a crew leader who doesn’t really know what is going on or how to make decisions and just tell people what to do.
    - Expect to do everything yourself, so that you're capable of stepping in when something is going wrong, no matter the situation.
  + think about what you would want or appreciate as a crew member. Also remember that you and your crew are all humans with needs. Academia has a toxic culture of "you work until you get it done" even if your physical or mental health suffers, do your best to prioritize the health and safety of yourself and your crew over that one more bit of data.
  + Model work ethic
    - ensure you're putting in the work alongside the rest of your crew
    - Don’t ask them to do all the hard stuff while you get to do the easy stuff. Get down in the trenches with them. That will earn their respect and trust and then they will be willing to work hard for you.
* **Monitor weather** 
  + checks weather conditions and other relevant environmental conditions/hazards (i.e., hunting season) regularly
* **Conflict management**
  + be attentive to interpersonal and group dynamics, and intervene discreetly if you recognize problems or worrisome interactions
  + buffering negative interactions
    - as team lead, be prepared to buffer crew from outside potentially dangerous humans
  + keep frustrated feelings away from team members who have less power
  + take responsibility as the crew leader for resolving conflict, preventing negative behavior, etc., even if you feel like the group is more a collection of peers than a supervisor and subordinates. It's important to have someone that is responsible for maintaining group norms
  + Mediate conflict resolution if necessary
    - have individuals talk out potential issues (yelling doesn't solve anything)
  + observing crew members and pairing those who work together well
    - be aware of personality conflicts and limit time together for conflicting individuals
    - break up/rotate cliques
  + Call out and shut down any harassment or problematic interpersonal interactions immediately
  + The first step in any tough situation--asking for more out of a member or starting to address a dispute--should always be recognizing that the person is doing a hard thing and doing it well. Even when things seem to be going fine, make sure you're explicitly letting people know you appreciate them. Start from the assumption that everyone is trying hard and feels unappreciated for it, and it's your job to fix that. When you model appreciation and assuming good intentions, other team members are more likely to do the same with each other.
* **Enforce appropriate consequences**
  + Let members know that they will be sent home if they engage in a pattern of unsafe behavior (I had a lead who had a 2-strike policy for life jackets, despite the enormous cost of sending people home early; this sets a dire tone and establishes expectations).
    - Describe unacceptable behavior and penalize it
    - be prepared to let members go if somethings arises even if in mid-season
  + Hold crew members accountable if expectations of conduct aren't met, but provide opportunities for people to learn and improve unless the conduct is threatening the safety and well-being of other crew member(s)

# Procedural Preparation

## Macro

* **Ensure proper training on safety** 
  + Mental health training / mental health first aid
  + Wilderness first aid
  + Basic first aid
  + Defensive driving/vehicle training
  + Sexual Harassment and bystander intervention
  + CPR
  + Specific to site risks
    - discuss scenarios that may be encountered in the field
    - Bear training
    - Hazardous Waste Operations and Emergency Response (HAZWOPER)
    - Firearm safety
    - Boat/vehicle operations
    - Avalanche training
    - Electro fishing accident protocol
    - show maps, pictures, video etc. prior to going to the field
    - orientation with navigation, weather, and terrain
    - discuss area-specific risks (animals, diseases, people)
  + Equipment orientation
    - Shakedown or practice trips with the truck and gps navigation, with each crew member 'in charge'
    - Schedule time to teach crew how to use safety devices (e.g., personal locator beacon, satellite phone, bear spray)
    - Show staff how to use the equipment, then watch them physically do the task while you are there to make sure they perform the task correctly and safety
  + list any field hazards (insects, weather, crop, allergies) and equipment hazards (show them the protocols, are there chemicals/sharps/parts under pressure/etc. you'll be working with
  + Teaches technicians patiently how-to walk-in waders
  + No one is lifting beyond their capacity. When lifting heavy objects, proper form is key.
  + leader should do appropriate trainings (TitleIX, implicit bias, Safezone, etc.) so they are able to create a comfortable and trusting environment and are also able to handle a situation should it arise.
  + Training as a group with equipment at a non-study location, review of protocols, discussion of objectives and purpose of field work
  + Take a course in effective leadership styles! Having had zero formal training or much experience leading a team, especially in another country and language, before grad school made leading a field crew the most challenging part of my PhD. Figuring out what kind of leader to be, and what sort of relationship to foster with your crew members, is hard, but so important in shaping the crew dynamic. For example, I think I was too friendly and acted too much like a peer, which led to my crew members testing boundaries and not respecting my authority later.
  + Become trained in culturally responsible mentoring.
  + Focus as much on soft skills, humane leadership, as the actual research objectives and technical scientific skills
  + Take your own training as a field leader seriously
    - While there are idiosyncrasies to the field work element, much of this is a matter of personnel and project management - for which there are numerous resources. take this element seriously - treat it like another technical aspect of your job/training, just like any other scientific skill like quant, writing, subject matter, etc.
* **Collect information from all team members for allergies, emergency contacts meds, health insurance, pre-existing conditions.**
* **Prepare/check/share a “need-to-bring” list for all members of team** 
  + provide an “optional” and “required”
  + discuss appropriate field clothing
  + provide gear/funds for anyone who needs help acquiring gear
  + Making supplies readily available when in the field (e.g., gloves, float coats, etc.) to keep the field crew safe/warm/healthy, sending an email with details that outlines strategies to stay safe/warm/healthy. Making sure there are supplies available that fit the body sizes of the field crew (e.g., gloves/coats/boots not too large) - can be a gender issue where men don't consider that women need smaller sizes or smaller size field gear may not be readily available to buy. These strategies help avoid tripping hazards, chemical spills from badly fitting gloves, helping field crew feel confident.
  + Have a daily checklist to make sure everyone has all proper personal and team gear, food, water, communication device.
  + Make sure people charge their equipment at night.
  + bringing extra food/water, generally bringing more supplies than you think you need
  + Consider current and future weather/field conditions to promote careful planning for food, water, PPE etc.
  + KEEP IN-REACH ON ALL DAY IF CREWS ARE SEPARATE (this happened to me once and it wasn't great).
  + Test your protocol and your equipment so that you have time to adapt it.
  + know how all your equipment works and how to problem solve technical glitches in the field (and when it's time to take your widget back to the lab for assessment).
* **Assemble a robust first aid kit**
  + Ensure each vehicle/working location has one
* **Emergency communication protocols.** 
  + determine if your field sites have cell service, if not obtain an emergency beacon with gps tracking and emergency service subscription
  + include with all crews/vehicles
  + ensure that all crew members are capable and comfortable operating all equipment with a special focus on GPS or other spatial tools.
  + establish communication norms and expectations (check in times, radio protocols, travel/movement plans)
    - Draft a communications plan (who has the radios and how to use them, what will you/they do if there's a problem, who to talk to and how to get in touch)
    - Set up a system to check in throughout the day in the field and keep to it
  + InReach Devices that allow you to share a website where the group's location is at all times are pretty great. The emergency beacon is a good safety tool when off the grid (provided you have clear standards and discussions about its use). The website is really nice for project leaders/ parents of undergrads to follow along too. It allows you to be "off" the grid but keeps folks at home invested and aware (and also pre-trip discussion re: the Inreach will helps drive home just how limited other communications will be)
* **reporting system**
  + open-door policy for grievances
  + can include in safety plan some sort of code of conduct with clear instructions on how and to whom to raise concerns.
  + Ensuring there are multiple points of contact to raise concerns (e.g., supervisor, graduate student, lab manager)
  + Make sure all crew members know people at the facility who are both mandatory and nonmandatory reporters who they can go to with concerns
* **Adequate pay / resources**
  + Make sure the work is not under-resourced. There is enough pressure when juggling the safety vs. getting work done tension, when you throw in a third angle of pressure (financial) it can force short cuts that compromise safe decisions.
  + crew have to be receiving adequate compensation (monetary/credit or combination), sufficient food, and safe and preferably comfortable housing so that they can recharge and relax during off hours and are able to safely focus on the project during work hours. Providing or ensuring housing (even in the form of a well-organized remote camp, including equipment and safe water/food) is critical. Not providing adequate payment or housing also means that you will have a homogeneous, privileged field crew who can afford to pay for "experience".
  + having access to tools/equipment that is needed (e.g., 4-wheel drive vehicles vs 2-wheel drive)
  + if I get injured during fieldwork, do I get workman's comp? What about during the one month I don't get paid by the department?

## Micro

* **Check-ins outside of crew**
  + Regular contact with logistics coordinator, discussing any concerns clearly.
  + make sure you have a direct line of communication to a trusted mentor at all times in case something goes sideways, or a problem situation arises, between team members in the field.
  + Mediate communications between supervisors and field crew
  + enable check-ins with someone other than immediate team lead
  + give everyone access to communications (radio, sat. phone, cell phone)
* **Incident reporting**
  + Address any incidents / address lesson learned
  + logging and keeping track of any injuries/incidents and updating guides/handbooks accordingly
* **Regular equipment maintenance/checks** 
  + ensuring spare tires, fire extinguishers, first aid, etc. are in place.
  + Instruct crew on how-to
  + Check In-reach every morning to make sure it works
  + have multiple people on the team responsible for ensuring everything is packed.
  + ALWAYS triple check that you have everything. anything that can be easily lost or broken (rulers, pencils, calipers, etc.) should have multiple backups
  + Bring extras of everything you might need
    - * bring extra sharpies and batteries
      * Bring remote phone battery packs
  + Keep first aid kit stocked
* **Check Data**
  + always make copies of all your raw data asap.
  + Use data validation to limit data entry errors.
  + have follow-up accuracy checks, refreshers, etc. if you see that data is coming in messy or inaccurate
  + don't slack on making sure that protocols are carefully followed
    - Keep an eye on methodological integrity when others are performing sampling tasks; teachable moments don't have to be or feel punitive (a little bit of backseat driving is ok if sample integrity is on the line; just make sure you teach them such that they do it right on their own next time, rather than having to continue to rely on you to be watching).
    - You only get one chance at this, so gently remind and refresh to make sure that everyone's data is clean.
* **Organization**
  + Pre-planning (and being willing to stay up after everyone else went to bed) helped make sure our equipment was present and in order, which prevented too many unexpected hang-ups (morale killers) and illustrated to the crew that I was fully in it, reliable, and on top of making their experience go as smooth as possible.
    - Download/print maps
    - ensuring all permits are up to date and that all team members have appropriate documentation for all sites where they will be working
    - Inspect large equipment such as boat motors and trailers (if you don't have the know-how, go to someone who does).
      * thinking broadly to include cars, tires, equipment
  + communicate adequately with project partners / property owners prior to data collection.
  + Well prepared leaders limit frustration of team
    - being superbly organized is a must so that you don't waste the crew's or your own time.
    - Start the permit process as soon as you can, ideally at least 5 months in advance.
  + Write everything down - precise methods, notes, daily records, etc.
    - Take tons of pictures!