

UNC ASHEVILLE FIELD OPERATIONS SAFETY MANUAL

This manual was adapted from the University of California Field Operations Safety Manual and provides guidelines and resources to lead safe, successful field courses and research trips at UNC Asheville. The content focuses on risk management issues relevant to UNC Asheville's field-based courses and research, international trips, research expeditions and other outdoor excursions. Field sites may include natural reserves, public lands or parks, wilderness areas, coastline or waterways, or more controlled sites such as construction areas, excavations, or mines. The Field Operations Manual was developed to serve as a reference document and teaching tool as well as to highlight applicable UNCA Policies and State/Federal laws. The manual is organized into key sections on planning, training, incident response, best practices for trip leaders, and appendices on common field hazards.

Risk, and recognizing the possibility of loss or injury, is integral to experiential learning and is inherent in field environments where we teach and conduct research. A field instructor or researcher must also be an effective risk manager who understands and anticipates risks and acts appropriately to reduce the likelihood of negative consequences. Accidents often result from a combination of challenging conditions, inadequate preparation and poor communication. For this reason, an effective trip leader must incorporate many attributes of leadership including preparation, competency, effective communication, appropriate judgment, self and group awareness, and tolerance for adversity and uncertainty (adapted from the National Outdoor Leadership School Educator Notebook).

Chapter 1: Planning

Assess Potential Field Hazards

All Off-Campus Activities warrant a pre-trip discussion regarding foreseen hazards, appropriate precautions, communication options, and emergency procedures. Use UNCA's Off-Campus Activity Risk Assessment form in order to develop a field safety plan. Additional actions are listed below.

DESTINATION	
Travel, Transportation, Per Diem	• Be familiar with University Travel Policies
Student International Travel	• Be familiar with UNCA's Student International Travel Policy
Study Abroad Program	• Contact Home - Study Abroad (unca.edu)
Are there recommended vaccinations or prophylaxis for your destination?	• Schedule a medical visit at least 6-8 weeks prior to your trip.
Will you be visiting sites with hazardous terrain, climate, wildlife, zoonotic risks, poor sanitation, other environmental hazards, or remote sites with limited services?	• Complete a field safety plan and review it with participants. • At least one participant should have current first aid training and carry a first aid kit.
Does your site lack reliable phone service?	• Include check-in-procedures in your field safety plan. • Avoid working alone. • Carry field radios or satellite communication devices.
Will you be visiting controlled sites such as construction sites, mines, or Superfund sites?	• Complete a field safety plan and review it with participants. • Request PPE and site access requirements in advance. • Carry UNCA identification. • Avoid working alone. • Check in with the site manager to understand what other hazards are currently present on site.

PARTICIPATION	
Are you responsible for students in Off-Campus Activities? Will participants be camping or sleeping in shared housing?	● Review “Best Practices for trip leaders” in this manual. ● Consider establishing a “Student behavior Agreement” or reviewing a “Code of Conduct”. ● Set the tone for a safe trip by discussing expectations and rules before the trip. ● Always carry a participant roster with emergency contact information.
Will volunteers be participating in Off-Campus Activities?	Register volunteers formally with the University
FIELD ACTIVITIES – Specifics to integrate into your Field Safety Plan	
Working outdoors with temperatures over 80 degrees F?	● Carry enough water, take breaks in shade. ● Carry shades or tarps if natural shade is unavailable. ● Maintain means of communication, awareness of location, and ability to obtain EMS.
Working in dry vegetation/areas with high fire danger?	● Complete fire extinguisher training. ● Carry a fire extinguisher and shovel in your vehicle.
Working in cold, wet conditions?	● Provide all participants a recommended gear list including waterproof clothing, boots; layers for insulation, extra socks, etc. ● Carry extra blankets or sleeping bags in your vehicle for emergencies.
Does work involve: ● Excavating soil more than 4 feet deep? ● Working at heights over 6 feet? ● Entering caves, vaults, mines, or other potential confined spaces? ● Handling or transporting hazardous materials or samples? ● Use of power tools or equipment? ● Working in loud noise? ● Clinical work or handling of biological specimens? ● Handling/trapping wildlife? ● Respirator use?	● Consult with EH&S for appropriate hazard assessment, training, and PPE selection. ● Include training requirements and precautions in your Field Safety Plan or refer to specific procedures. ● If medical clearance or vaccinations are required, schedule a medical visit 6-8 weeks prior to travel.

Will anyone be boating? (kayaks, canoes, etc.)	• Properly fit PFDs must always be worn. • Complete a float plan for every trip. • Dress appropriately for weather conditions. • Be aware of appropriate river water levels, tidal changes, dangerous currents, and weather changes.
Will anyone be snorkeling?	• Use a buddy system • Use flotation devices or snorkeling vests • Wear appropriate exposure protection (wetsuit or drysuit)

Assemble a written field safety plan

For field work in remote locations - or hazardous work off campus - develop a field safety plan with site information and emergency procedures. Taking the time to compile a thorough safety plan and discussing it with your team will prepare you to more effectively manage risks that arise in the field. It serves as a hazardous assessment tool and can include Go/No Go criteria. Brief your field team or course participants on trip logistics and precautions. Developing and using a field safety plan is appropriate for the following activities:

- Conducting field research or teaching field courses off-campus;
- Work performed at field stations, nature reserves, or controlled sites;
- Outdoor excursions.

Field safety plan templates and assistance are available via UNCA EH&S.

Identify appropriate equipment, gear and first aid supplies

Fieldwork often requires travel and work at sites that lack basic services such as plumbed water, reliable communications, or prompt emergency medical services. It's important during planning to budget for appropriate safety measures.

First Aid Kits

Any excursion into the field should include carrying some basic first aid supplies. There is no perfect first aid kit, but considerations include:

- First aid kits don't save lives. People do. Get trained and know how to use everything you put in your kit.
- Commercial first aid kits are a good starting point. Customize your kit for your destination, task, group size, and level of training.
- Pack extra gloves.
- Re-pack your first aid kit for each trip. Replenish used or expired items.
- Leave an empty plastic bag in your kit for trash.

[27 Considerations for A Wilderness First Aid Kit](#)

Important safety equipment to bring into the field

List required PPE, equipment and recommended clothing/gear in your Field Safety Plan. For remote, outdoor work, outdoor essentials include:

- First aid kit
- Map, compass, GPS
- Charged cell phone, field radios, satellite phone/device, extra battery or charger.
- Extra water and/or water purification methods
- Extra food/snacks
- Hats, sunscreen, sunglasses
- Emergency shelter (shade canopy or lightweight tarp, or emergency space blanket)
- Appropriate footwear and clothing, layers
- Flashlight or headlamp
- Matches or fire starter
- Signal mirror, whistle
- Knife or multi-tool; duct tape for basic repairs
- Your field safety plan with emergency procedures, other protocols if applicable
- Other equipment specific to your class or project

Complete other forms/documentation

- Relevant permits (if applicable)
- Participant medical forms (if applicable)
- Liability waivers (if applicable)
- Copies of drivers' licenses, drive authorization forms (if applicable)
- Copies of passports for all participants on international courses/trips
- Copies of medical prescriptions for applicable persons
- Include participant list with emergency contacts as part of your field safety plan

Communicate with participants before your trip

Your students/field team members need to be physically, mentally and logistically prepared for their field experience. Help prepare your participants to have a safe experience:

- Schedule an orientation "pre-trip" meeting before heading out in the field.
- Send or give your participants information regarding your course or project. This can include a personal equipment list, a description of what to expect, a participant medical form, syllabus, waivers, and contact information of leaders and other participants.
- Review your Field Safety Plan, expected hazards and conditions, security concerns, code of conduct, and travel logistics.
- Initiate direct communication with your participants. It may be necessary to talk directly with participants beforehand to determine whether a field class or research expedition is the right choice for them.

Chapter 2: Training

Mentoring is essential to transfer knowledge and practical skills from experienced faculty, staff and researchers to new researchers and students, and is often provided informally. However, documented training is a critical part of our University safety programs in order to comply with regulatory requirements, accrediting agencies, and in many situations, funding organizations. Commercial trainers typically provide documentation via a certification that an individual should maintain and be able to provide upon request, e.g. a first aid card. Departments, research groups or field course instructors can integrate training on safe practices into lab meetings, hands-on demonstrations, or field lectures and document completion via a simple sign in sheet. It is also appropriate to list required training as prerequisites in a Field Safety Plan.

First Aid Skills

First aid training is appropriate for working off-campus and at remote field sites because emergency medical services may be limited or delayed. CPR/AED training is also recommended. These trainings are offered by UNCA Campus Recreation on campus or can be obtained from the [American Red Cross](#).

Wilderness first aid training is appropriate for outdoor fieldwork or visiting remote sites because it covers more first responder information than a typical first training. The largest wilderness medicine training provider in the U.S. is the National Outdoor Leadership School (NOLS). Wilderness first aid training can also be requested through UNCA Campus Recreation.

Leadership Skills

Facilitating field research or teaching field classes can require leadership skills that go beyond the expectations of a lab instructor or classroom teacher. This manual attempts to provide a comprehensive resource for helping instructors learn more of these skills. An excellent written resource is the [NOLS Leadership Educator Notebook](#).

Basic Outdoor Skills

Working in the field can require knowledge of many outdoor skills, such as map-reading, compass use, cross-country navigation, camping, cooking over a fire or with a camp stove, field sanitation practices, and treating drinking water. Campus recreation programs may be able to help provide additional training in these skills.

Leave No Trace & Outdoor Ethics

Many field sites are fragile and can easily be damaged by even light use. It's important, whenever possible, to adopt field practices that minimize lasting negative impacts. The national educational program called [Leave No Trace](#) has developed a set of principles that can be generally applied when working in wilderness conditions. More guidelines are available for specific habitats (e.g. river, deserts, etc.) and areas outside the United States on the LNT website and describe how to adhere to the following seven LNT principles:

- Plan and Prepare
- Travel and Camp on Durable Surfaces

- Dispose of Waste Properly
- Leave What You Find
- Minimize Campfire Impacts
- Respect Wildlife
- Be Considerate of Visitors

Specialized “Task-Based Skills

In order to make accurate risk assessments in the field, you need knowledge about specific hazards. For instance, if you don’t understand what causes an avalanche, you can’t possibly accurately decide when, where, and how to safely travel on steep snow. Get the training you need in the specific skill areas where you’ll need to do risk assessment. Even a little training can go a long way towards making more accurate assessments and performing safer actions in the field. Mentoring is critical to transfer knowledge and practical skills from experienced faculty and researchers to new researchers and students. Brief your team often - at the beginning of an activity and as conditions change.

Boating – Motorboats, kayaks, canoes, rafts, other paddle craft

In North Carolina, any person born on or after January 1, 1998 must successfully complete The National Association of State Boating Law Administrators (NASBLA) approved boating education course before operating any vessel propelled by a motor of 10 HP or greater. Boating regulations can be found on the [North Carolina Wildlife Resources Commission](#) web page. Kayaks, canoes, rafts and other paddle craft are commonly used for Field activities and Research Projects. Properly fit PFDs must always be worn, and a Float Plan should be completed for every trip.

Snorkeling

Snorkeling provides a relaxed and accessible way to appreciate the beauty of marine life and ecosystems. Always file a Float Plan prior to snorkeling and use flotation devices or snorkeling vests.

Climbing or Work a from Heights

Falls from height are consistently among the top causes of work-related fatalities in the U.S. Climbing trees, towers, or other structures; using ladders or lifts like “cherry pickers”; or other work at height or near edges or cliffs all warrant careful review of equipment and safe practices. Consult with your campus EH&S department to obtain appropriate fall protection, ladder safety, or equipment training. Full-body harnesses, helmets, and other safety gear must also be properly fit, diligently inspected, and properly used to avoid injuries and ensure compliance with NC OHS/OSHA regulations.

Operating Powered Tools or Equipment

Follow manufacturer’s instructions and keep the powered tool’s or equipment’s manual accessible. Prerequisites and work practices for use of powered tools or equipment should be documented in your Field Safety Plan; in some situations, referring to specific manuals or Job Safety Analysis (JSA). A JSA is the breaking down of a job into its component steps and then evaluating each step, looking for hazards. Each hazard is then corrected or a method of worker protection (safe practice or PPE) is identified. Additional requirements for worker training, certification, authorization, etc., may be identified for the process or job. The final product is a written document, Standard Operating Procedure (SOP) for a job.

Excavation or Trenching

Hazards related to excavation or trenching include:

- physical hazards from use of digging equipment or being trapped/buried by collapsing soil;
- respiratory hazards caused by disturbing soil that contains *Coccidioides* fungi (which causes Valley Fever) or other environmental contaminants,
- and trips/falls if the edge is not clearly flagged or protected. Excavations greater than 4 feet deep trigger NC OSH/OSHA regulatory requirements for evaluation and shoring. Consult with your EH&S office for guidance and to establish safe work practices.

Entering Confined Spaces such as Caves, Vaults, or Mines

Hazards related to entering confined spaces include:

- physical hazards from unstable structural integrity, low overhead clearance,
- respiratory hazards from unsafe environmental conditions, such as hydrogen sulfide gas or lack of oxygen,
- and increased risk due to access limitations, unreliable communications, and isolated, often dark and rugged/ uneven conditions.

Consult with your EH&S office for confined space entry training and to establish safe work practices. It is a standard precaution for workers to wear a hardhat, headlamp, and carry a 4-gas meter (that measures hydrogen sulfide, combustible gas, carbon monoxide, and oxygen levels simultaneously) to verify safe conditions and adequate oxygen levels prior to entry into a confined space.

Handling Wildlife

Wildlife biologists face environmental hazards in the field, as well as risk of zoonotic and vector-borne diseases and the physical threat of a wildlife attack or bite. During required institutional review of animal protocols, best practices for trapping or darting of wildlife should be adopted, but broader field hazards should not be ignored. As with all fieldwork, working alone, extreme weather conditions, unreliable communications, and limited or delayed emergency medical services may exacerbate any research-related incidents. It is standard precaution for gloves to be worn when handling any wildlife, and additional controls are warranted for species that transmit life-threatening diseases, e.g. wearing a respirator for handling deer mice (hantavirus) or getting a rabies vaccination for handling bats or other carriers.

Clinical Work or Handling Biological Specimens

Clinical work or collecting/handling human biological specimens should be covered under an Exposure Control Plan that includes careful consideration of vaccinations, safe work practices, appropriate PPE, post-exposure prophylaxis, and incident reporting. NC OSH/OSHA requires that employees that may be exposed to human blood, bodily fluids, or cells be provided Bloodborne Pathogen Training and offered Hepatitis B vaccination at no cost. Consult with UNCA EH&S for guidance.

Chapter 3: Incident Response & Reporting

It's impossible to foresee all injuries or incidents that may occur when working in uncontrolled environments, but first aid skills and having emergency plans in place will help manage situations effectively and potentially mitigate negative consequences. Once a situation is stable and urgent medical care needs are met, report incidents to campus to trigger University support and evaluation. Reporting procedures, as well as mechanisms to debrief and review lessons learned, are outlined below. As a University, we must also comply with a variety of reporting regulations, including but not limited to, reporting of injuries and fatalities to NC OSH, Title IX reporting of sexual harassment and criminal behavior, environmental releases or spills, and loss/theft/misuse of research materials or funds.

First Aid & Initial Response

Call 911 or seek medical care immediately. Always know your physical location; everyone in your group should be able to provide Emergency Medical Services (EMS) accurate directions to the field site.

Life-Threatening Injuries or Illness

Basic First Aid

By administering immediate care during an emergency, you can help an ill or injured person before EMS arrive. A variety of useful references can also be downloaded to your smartphone (and are then accessible without cell or wifi service) such as the Emergency Medical Response Guide or "EMR Guide" from the National Safety Council and "First Aid" from the American Red Cross. Both are available free from the App Store.

First Aid Steps (adopted from the American Red Cross):

1. Assess the Scene

Before administering care to an ill or injured person, check the scene and the person. Size up the scene and form an initial impression. Pause and look at the scene and the person before responding. Answer the following questions:

- Is the scene safe to enter?
- What happened?
- How many people are involved?
- What is my initial impression about the nature of the person's illness or injury?
- Does the person have any life-threatening conditions?
- Is anyone available to help?

2. Awake and Responsive

If the person is Awake and Responsive and there is no severe life-threatening bleeding:

- Obtain consent: Tell the person your name, type and level of training you have, what you think is wrong and what you plan to do. Ask permission to provide care.
- Use appropriate PPE: gloves
- Interview the person: gather more information about **S**igns/symptoms, **A**llergies, **M**edications, **P**ertinent medical history, **L**ast ins/outs, and **E**vents leading up to the incident. (Acronym: SAMPLE Questions)

- Conduct a head-to-toe check: Check head and neck, shoulders, chest and abdomen, hips, legs and feet, arms and hands for signs of injury.
- Provide care consistent with knowledge and training according to the conditions you find.

3. If the Person Appears Unresponsive

Shout to get the person's attention, using the person's name if it is known. If there is no response, tap the person's shoulder (if the person is an adult or child) or the bottom of the person's foot (if the person is an infant) and shout again, while checking for normal breathing. Check for Responsiveness and breathing for no more than 5-10 seconds.

4. If the Person is Breathing

Send someone to call 911 or the designated emergency number and obtain an AED and first aid kit.

- Proceed with gathering information from bystanders using the SAMPLE questions.
- Conduct a head-to-toe check.
- Roll the person onto his or her side into a recovery position if there are no obvious signs of injury.

5. If the Person is NOT Breathing

- Send someone to call 911 or the designated emergency number and obtain an AED and first aid kit.
- Ensure that the person is face-up on a firm, flat surface such as the floor or ground.
- Begin CPR (starting with compressions) or use an AED if one is immediately available
- Continue administering CPR until the person exhibits signs of life, such as breathing, an AED becomes available, or EMS or trained medical responders arrive on scene.

Basic First Aid Reference Table

Control Bleeding	Put on gloves. Cover the wound with a dressing and press firmly against the wound (direct pressure). Elevate the injured area above the level of the heart if you do not suspect that the victim has a broken bone. Cover the dressing with a bandage. If the bleeding does not stop, apply additional dressings and bandages, and use a pressure point to squeeze the artery against the bone. Provide care for shock.
Care for Shock	Keep the victim from getting chilled or overheated. Elevate the legs about 12 inches (if broken bones are not suspected). Do not give food or drink to the victim.
Burns	Reduce pain by gently cooling the burn. Pour large amounts of water over the burned area. Cover the burn with dry, clean dressings or cloth.
Muscle, Bones and Joint Injuries	Rest the injured part. Apply ice or a cold pack to control swelling and reduce pain. Avoid any movement or activity that causes pain. If you must move the victim because the scene is becoming unsafe, try to immobilize the injured part to keep it from shifting.
Poisoning	Call the Poison Control Center (1-800-222-1222) and communicate what was swallowed and how much. Follow the directions given exactly.
Allergic Reaction	Allergic reactions range from mild to severe. Anaphylaxis is a serious, life-threatening allergic reaction. The most common anaphylactic reactions

	are to foods, insect stings, or medications. More specific response actions outlined below.
Heat Illness	Heat exhaustion is the most common type of heat illness. Move to a cool, shaded place; hydrate with cool water. If no improvement, call 911 and seek medical help. Do not return to work in the sun. Heat exhaustion can progress to life-threatening heat stroke. More specific response actions outlined below.
Hypothermia	Move the victim into a warm room or shelter and remove wet clothing. Warm the center of their body (chest, neck, head, and groin) under loose, dry layers of blankets, clothing, towels, or sheets. Warm beverages may help increase the body temperature, but do not give alcoholic beverages. Do not try to give beverages to an unconscious person. After their body temperature has increased, keep the victim dry and wrapped in a warm blanket, including the head and neck. If victim has no pulse, begin cardiopulmonary resuscitation (CPR).
Frostbite	Get into a warm room or shelter as soon as possible. Unless necessary, do not walk on frostbitten feet or toes-this increases the damage. Immerse the affected area in warm-not hot-water (the temperature should be comfortable to the touch for unaffected parts of the body). Warm the affected area using body heat; for example, the heat of an armpit can be used to warm frostbitten fingers. Do not rub or massage the frostbitten area; doing so may cause more damage. Do not use a heating pad, heat lamp, or the heat of a stove, fireplace, or radiator for warming. Affected areas are numb and can be easily burned.
Other Environmental Injuries	Signs/symptoms and treatment are described thoroughly in the reference NOLS Wilderness Medicine 6th edition by Tod Schimelpfenig (2016) for altitude sickness, lightning, stings and bites, and cold-water immersion. As these types of injuries occur infrequently, it's important to carry a wilderness medicine reference with you; a condensed field version is typically provided during wilderness first aid training.

Anaphylaxis

Allergic reactions range from mild (e.g. hay fever) to severe (e.g. anaphylaxis). Anaphylaxis (an-a-fi-LAK-sis) is a serious, life-threatening allergic reaction. The most common anaphylactic reactions are to foods, insect stings, or medications. Symptoms may develop immediately, rapidly progress over minutes, or develop slowly over hours. Anaphylaxis requires immediate medical treatment, including a prompt injection of epinephrine and a trip to a hospital emergency room. If it isn't treated properly, anaphylaxis can be fatal.

Signs and symptoms of Anaphylaxis may include rash, hives, welts; swollen throat; wheezing; passing out; chest tightness; difficulty breathing, swallowing; vomiting; diarrhea; stomach cramping; etc.

Directions for Use of Auto Injectors:

- Never put thumbs, fingers, or hands over the tip of the auto-injector.

- Wear gloves.
- Inform the patient of your actions and obtain consent from the patient before administering epinephrine. If unresponsive, implied consent is acceptable in a life-threatening situation.
- Form a fist around the auto-injector.
- With your other hand, remove the safety-caps.
- Jab the auto-injector firmly into patient's outer thigh so that the auto-injector is perpendicular to the thigh.
- Hold the auto-injector firmly in the thigh for 10 seconds to allow time for the medication to disperse.
- Remove the auto-injector, and then massage the injection area for several seconds.
- Store used auto-injectors in their carrying case, inserting them carefully and needle-first into the labeled side.
- Continuously monitor the patient and immediately seek emergency medical care.
- As needed, a second dose of epinephrine may be administered 15 minutes after the initial dose.

Heat Illness

First Aid-Signs & Symptoms of Heat Illness		
Signs & Symptoms	Treatment	Response Action
HEAT EXHAUSTION		
• Dizziness, headache • Rapid heart rate • Pale, cool, clammy or flushed skin • Nausea and/or vomiting • Fatigue, thirst, muscle cramp	• Stop all exertion. • Move to a cool shaded area. • Hydrate with cool water.	Heat exhaustion is the most common type of heat illness. Initiate treatment. If no improvement, call 911 and seek medical help. Do not return to work in the sun. Heat exhaustion can progress to heat stroke
HEAT STROKE		
• Disoriented, irritable, combative, unconscious • Hallucinations, seizures, poor balance • Rapid heart rate • Hot, dry and red skin • Fever, body temperature above 104°F	• Move (gently) to a cooler spot in shade. • Loosen clothing and spray clothes and exposed skin with water and fan. • Cool by placing ice or cold packs along neck, chest, armpits and groin (Do not place ice directly on skin)	Call 911 or seek medical help immediately. Heat stroke is a life-threatening medical emergency. A victim can die within minutes if not properly treated. Efforts to reduce body temperature must begin immediately!

Seeking Medical Care in the Field

Directions and contact information for nearby medical services should be identified in advance and included in your field safety plan. For international travel, the US State Department and embassy websites provide guidance on finding a doctor or hospital while abroad.

Incident Reporting

Immediately report all work-related injuries or illnesses and near-misses to your supervisor and campus department. Supervisors/departments are responsible for promptly reporting incidents to EH&S and completing incident report forms. Ideally, specific emergency contact numbers and incident reporting procedures are clearly outlined in written field safety plans carried in the field.

Lessons Learned

By reporting and reviewing incidents among departments and with campus staff, lessons learned can benefit a broader group and help improve our operations. We all recognize that injuries happen when working outdoors in uncontrolled environments but want to strive toward being prepared, making safe decisions in the field, and minimizing the negative consequences when incidents occur

Chapter 4: Best Practices for Trip Leaders

This chapter has been adapted from guidance compiled by Christopher Lay at the Ken Norris Center for Natural History (UCSC) and the NOLS Leadership Educator Notebook and is divided into two important sections: Risk Assessment and Effective Communication. Trip leaders of all experience levels can benefit from these strategies to set the tone for a safe trip and manage situations that arise. It's impossible to prepare for all scenarios that may unfold when working in uncontrolled environments, but consideration of both objective and subjective factors is critical to manage incidents in the field.

Risk Assessment

Evaluating the "Accident Potential"

Always ask yourself: If we get into an accident right here, could I justify my actions and decision-making when I describe this back home? Two forces overlap when most accidents occur:

- Objective factors: These are environmental hazards presented by the natural world, such as weather, darkness, falling rocks, moving water, lightning, snow, exposure, avalanche, cold, hot, or deep water, etc.
- Subjective factors: These are human characteristics that often play a role when accidents occur. They include complacency, overconfidence, distraction, differing perception of risk, expectations and peer pressure, fatigue, stress, haste and lack of competence

Developing Conservative Judgment

Judgment is the logical reasoning we use to help us decide what to do in a new situation. It's based on our experience and personal reflection that leads to an insight or changed behavior that you carry forward with you. A few important points to remember about developing conservative judgment:

- Experience alone does not develop conservative judgment. Plenty of people take the same extreme risks repeatedly. Reflection from one's experience that leads to a modified future action is just as important as experience.
- We are going to make mistakes – the key is to learn from them.
- There are better and worse times to make mistakes – you don't want to push your limits when you're leading a group. Do this on your own time.
- It's good for beginners to have simple clear "unbreakable" rules, such as: never climb a peak after noon in the mountains (because of lightning strike potential). Over time, your judgment will help you develop more nuanced rules.
- Often you must follow policies set forth by your organization that may conflict with what your judgment tells you to do. Follow your protocols.
- Sometimes you don't have the experience to use good judgment – it is okay to stop and not do something.
- Supervisors don't typically get upset if you're "too safe", but people will get upset (and potentially hurt!) if you get in over your head.

Use the Equation: Risk = Likelihood * Consequences of an Accident Occurring

		Likelihood of an Accident	
		Low	High
Consequences Of an Accident Occurring	Low	GO! This is an acceptable risk!	GO? Can you mitigate this before proceeding? Is your group developing solid skills, good safe decision-making and self-awareness?
	High	STOP? Lean towards avoiding these, but can you mitigate the situation to lessen the consequences? If so, this could turn to a go.	STOP! Avoid these situations!

This graphic depicts the Go/No Go concept integrated into our field safety plans. Some conditions may be clear “No Go” situations, e.g. lightning, high waves, extreme heat, washed out roads, etc., but many challenging field situations will fall into the “amber” boxes.

Facilitating Safe Group Decision-Making

As a field leader, you must accurately assess risks, mitigate hazards and carry out safe actions. You also must facilitate your group making safe decisions together. This can be challenging and requires both competency in risk analysis as well as solid communication and leadership skills. Consider the following four ways that groups make decisions:

- Directive: The leader decides and informs the group.
- Consultative: The leader decides after consultation with the group. This can happen two different ways: the leader might first solicit input from the group and then decide or the leader might tentatively decide and get input and reaction from the group before making the final decision.
- Group decides: All group members (including the leader) contribute equally to the decision-making process. This could happen through a vote or through consensus.
- Delegation: Leader delegates the decision-making to the group after defining the appropriate boundaries and conditions. Before delegating, the leader must feel comfortable with any decision made.

Many experienced leaders employ all these decision-making styles depending on the situation and the expertise of their groups. By doing so, leaders help maintain a safe learning environment while at the same time helping groups take ownership and responsibility for their collective experience.

Effective Communication

Set the tone for a safe learning environment

The success and overall safety of a team is more associated with the quality of its leadership, teamwork and communication than it is with its overall skill level. Teams don't magically happen. They are consciously built by the actions of both leaders and participants. Before any risky situations arise, it's important to develop and practice good teamwork and communication within your teacher/leader team and student/research group. As a leader/teacher, you have enormous influence over how well (and how safely) your team will perform. Below are several key communication actions you can employ to help you more effectively steer your group in a safe positive direction.

Establish and maintain reasonable goals, roles, expectations/behavioral norms

As a leader of your group, you have the most influence over creating a culture of safety within your group. By far, the most leverage you have is at the beginning of your class/trip. All your group's future endeavors are made easier or more challenging by the effectiveness of these first interactions. Two important meetings should occur at this early stage:

- Meet with your leader/teaching team prior to the beginning of your class/trip to discuss your leadership roles as well as personal and course objectives.
- Facilitate an orientation pre-trip meeting with your whole group as early as possible to establish clear goals, roles, expectations and behavioral norms.

The following is a suggested format you could use for a discussion about creating a safe learning environment for undergraduates participating in a multi-day field class. This discussion should happen as early in the course as possible. This can easily be modified or shortened for less-involved field experiences or different participants. Regardless, this discussion is one of the key leverage points that leaders have over the general trajectory that their group will follow during their time together. Don't skip it.

- Introduction: Living and studying outside will pose significant challenges for all of us. A big part of this challenge is how we work together as a group - how we communicate, cooperate, problem-solve and support one another. This course is different (and much more) than a regular academic experience - we learn together but we also live together and can't get away from each other when we're in the field. We have the responsibility both before and during the course to co-create a safe, positive learning environment. The rewards of building and maintaining a safe, supportive community are huge. Your own learning goals will be magnified when we actively work to support each other.
- Explicitly State Leader Expectations: With this in mind, it is important to specify and build consensus around what it takes to maintain a safe positive learning environment. Let's spend time now as a group discussing this and getting everyone's input. For now, consider the following general aspects

that we as the leaders of this course have found useful in creating a safe positive learning environment:

- You can expect us (your leaders) to instruct this course. But you can also expect us to respect you for who you are, to support you both physically and emotionally, to give and receive constructive feedback, and ultimately to provide a safe learning environment for you and the group as a whole.
- We will expect all of you:
 - to respect one another
 - to practice proactive self-care; check in with us about medical concerns and other concerns you may have
 - to follow our lead & follow the rules
 - to participate fully (be on time, get out of bed, speak up in discussions, take part in activities)
 - to teach and learn from one another
 - to be open minded and ready to learn
 - to take initiative to try new things (peer leadership)
 - to work together as a team (you don't have to like everyone, but you do have to work together effectively. Sometime this means taking a leadership role, sometimes it means supporting one of your peers who takes a leadership role.)
 - to be willing to sacrifice some personal goals for the sake of the group (you may need to speed up/ slow down, turn around on a hike, speak up more, listen more, modify your level of sarcasm/joking to fit with the norms of the group, etc.)
 - to give and receive constructive feedback
 - to provide a safe learning environment for everyone
 - to put your whole self in to the experience
- Get input from your group: Take some time to discuss in smaller groups anything else the student group thinks is important to maintaining a safe learning environment. Then discuss as a whole group, letting as many participants share what they talked about. Acknowledge everyone for listening and sharing.
- Explicitly go over the important rules. Here are some common rules/issues that you might consider specifically addressing:
 - Personal physical safety - no hiking alone, no rock climbing, swimming guidelines, etc. You must wear your seatbelt in the van whenever we're driving. You likely don't have time to discuss all of these right at the beginning but introducing them lets your group know that you think they're important. You can say that you will come to these in more detail once out in the field.

- Emotional safety
 - Sexual harassment: Harassment can include “sexual harassment” or unwelcome sexual advances, requests for sexual favors and other verbal or physical harassment of a sexual nature. Harassment does not have to be of a sexual nature, however, and can include offensive remarks about a person’s sex. The university tolerates zero harassment and as employees, we are mandated reporters.
 - Avoid jokes, sarcasm or insulting remarks: about individuals or groups of people, whether or not they are represented on this course.
 - Aggression: Avoid either verbal threats or motion to harm others in the present or future.
 - Language: Keep the course relatively free of bad language.
- Alcohol and other drugs: This can clearly be a difficult “rule” to establish. Consider bringing up four things with the students: safety, legality, learning and group cohesion.
 - Safety: Clearly drugs and alcohol can compromise safety, which is especially concerning in remote field contexts.
 - Legality: Drugs are illegal and using alcohol under 21 is illegal. Getting caught condoning illegal activities in a university-sponsored field class could cost any leader their job as well as jeopardize the future of the course.
 - Learning: Drugs and alcohol can interfere with your ability to learn the material we cover in this course.
 - Group cohesion: The use of drugs and alcohol can often undermine community building within a group.
- Smoking: Follow the law/rules. In a place where smoking is permissible, smoke outside away from others and throw your butts away (they are not biodegradable).
- Exclusive relationships (including romantic ones): You might say “Get out of your bubble and be inclusive of everyone.” It takes an explicit, deliberate action to be inclusive of everyone - make it a goal to sit some place different tomorrow and strike up a conversation with someone else. The whole experience will be much more meaningful if we come together as a whole group.
- Cell phones: “Either put your cell phone in airplane mode or turn it off completely during the day. If there are some apps you’re using for class, that’s fine. If you want to make brief phone calls outside of our class time (like after dinner), that’s fine. What we want to avoid is checking out of the present moment and not interacting with the people who are physically present.”
- Music: “No speakers in the field; music in the van is at the driver’s discretion. Beware listening too much to music using earbuds: it can lead to checking out too much from the group.”
- Removing someone from the course: You might want to give an example of the rare occurrence where someone might separate from the course. Consider saying:

- If something inappropriate comes up, we will first and foremost talk with that person or people involved.
- Our goal would be to build understanding, provide additional support and clarification to everyone involved.
- However, if the inappropriate behavior continues, we could decide to separate a person from the course.
- Finally, explicitly ask for everyone to follow these guidelines in order to create a safe learning environment: You might say, “Does all this sound good? Can I get a yes or a nod from everyone? If any of this concerns you, please feel free to come to talk with one or all of us after this meeting.”

Brief your team often

Groups operate more safely when they are frequently briefed on what to expect. Brief at the start of the day or activity. Brief when conditions change. Brief when your plans change. Excellent leaders articulate and explain goals as often as necessary. Strive to incorporate these core ingredients into your briefings:

- What are we doing? (What are the goals?)
- How are we doing it? (What’s the plan?)
- When are we doing it? (What’s the timetable?)
- Who is doing it? (What are our roles?)
- What hazards can we anticipate?
- How will we manage those hazards? (What are the contingency plans?)
- What gear do we need?
- How and when will we make decisions?
- How is everyone doing? What concerns do you have?
- What is our plan if someone becomes ill or injured or lost?
- Have I been understood? (If necessary, ask your group to repeat back the information you just gave them.)

Practice active listening

The practice of active listening can help you build a healthy group learning community but also can significantly reduce the likelihood of accidents. When you are actively listening to someone, you are supporting people to think out loud. This builds trust, group intelligence, and greater awareness of a situation or issue. It also helps leaders (and their groups) make safer decisions. Active listening requires that you:

- be present with your speaker
- do more listening than speaking
- make eye contact and use positive body language
- focus on understanding what someone is saying, not on mentally preparing a response
- avoid interrupting, debating, and quick, preconceived responses

The two cornerstone skills of active listening are Paraphrasing and Drawing People Out:

Paraphrasing

When you paraphrase someone, you say back to the speaker what you think the speaker said in your own words. This is the most straightforward way to demonstrate to a speaker that his or her thoughts were heard and understood. When done well, it is non-judgmental and enables people to feel that their ideas are respected.

Drawing People Out

When drawing someone out, ask open-ended non-directive questions. This helps the speaker clarify and refine their thoughts. Setting a tone that invites good listening reduces the probability of accidents. A good leader sets a tone in which participants and co-leaders feel they can speak up, question and share observations without fear of reprisal. Do this by frequently checking in with your instructor team and student group. Strive to follow these guidelines:

- Give adequate time for discussions to avoid giving the impression that your group has nothing to contribute.
- Make eye contact.
- Listen to your team member's responses without interrupting or "talking over" them.
- Ask: "Are you getting enough direction from me about what you need to be doing?"
- Be aware of giving the impression that you're not looking for input.
- Instead of saying, "Okay - you've all done this before. Ready to go?" ask "Hey is anyone not ready?"
- Be aware that silence can be mistaken for agreement. Take the time and create the space for everyone to express their concerns.

Resolving Conflict

The potential for conflict is natural among people and is an inherent part of any group's development into a safe, high functioning team. Rather than avoid conflict, effective teams manage conflict productively. While conflicts are okay, unresolved conflicts are not. They impede communication and cooperation, and they can lead to incidents. Conflict often arises when expectations, roles and responsibilities are unclear. Participants may be missing information or lack a sense of the big picture. It's the leader's job to clarify this for your group. When conflict arises, you should see it as a sign that your team may be unraveling. As a leader, you may need to step in, acknowledge the issue and set aside time to work through the conflict. Do this by listening to the different perspectives and opinions, restating or revising roles & expectations and committing to moving forward productively. Some strategies to consider:

- Approach the student, co-instructor or team member with respect (think connection before correction).
- Clarify your expectations and/or goals for the course. If they are not meeting your expectations or hindering your goals, specify which one(s) they aren't meeting.
- Suggest ways they could meet expectations the next time this situation arises. Don't be afraid to say: "We need everyone to follow these expectations in order to create a safe learning environment for everyone."

- Educate your students about the ramifications of their actions, etc.
- Engage in collaborative problem solving with your student(s).
- Plan for checking in again.

Addressing student/participant behavior in the field

Often, one of the most difficult challenges of a field instructor/leader is to address group dynamics and individual behavior that can undermine a positive learning environment for everyone. These challenges may manifest as homesickness/disengagement, alcohol or drug use, poor performance, sexist or racist behavior, or various behaviors that prevent inclusion of everyone. Addressing these issues is a continual process and involves all the following:

- Setting the tone for a safe positive learning environment
- Using inclusive language: (e.g., use “family” instead of “parents”, give students the opportunity to share their preferred gender pronouns when they first introduce themselves to the group)
- Building rapport: Developing positive professional relationships with all students/participants. Give regular positive and constructive feedback, spend time (structured and unstructured) with them, play games, have conversations, ask them questions, set and reinforce boundaries and learn from your students. Make the effort to individually check-in with each of your students/participants at some point during your course/ project. Ask them how they’re doing, ask them to give you feedback, and then listen.

Should challenges arise with a student, consider the following options:

- Examine the student’s behavior and their individual experience while revisiting the structure and boundaries you set for a safe, positive learning environment, your role as an instructor and the culture created by your group.
- Are their social dynamics at play in your group that isolate, intimidate, or threaten this student?
- What needs of this student are not being met? What could you do to meet them?
- Is this student getting from his/her disruptive behavior? Is there any other way this student could meet their needs in a more productive way?
- Are the boundaries you have created thwarting this student’s ability to feel capable, connected, and that their presence matters?
- Make structural changes (such as giving more time for lunch or taking the afternoon off every once in a while) that you think might alleviate some of the stress on this student.
- Give verbal feedback and coaching first before written documentation.
- Keep a written behavior log of observations about the student’s behavior.
- Be accurate - stick to observations and quotes; avoid speculation, interpretation, and evaluation.
- Be specific, clear, and organized. Use dates, times of day, names, etc.
- Use direct quotes from the student and from their peers - “His peers observed him saying
- Be brief and avoid redundancy.

Appendix: Common Field Hazards

Environmental Hazards

- [Wildfire Control and Prevention](#)
- [Poisonous Plants](#)
- [Guide to Drinking Water Treatment in the Backcountry](#)

Wildlife

- [Common snakes of NC](#)
- [Common spiders of NC](#)
- [Common Forest Insect Pests of NC](#)
- [Poisonous plants](#)
- [Bear safety](#)

Infectious organisms/diseases

- [Lyme disease](#)
- [Giardiasis](#)
- [Tick Removal video](#)
- [West Nile Virus](#)
- [Hantavirus](#)
- [Other communicable diseases](#)

International Planning Resources

- [Infectious Diseases and Traveler's Health – Search by Destination](#)
- [Travel Advisories by Location](#)

Extreme Conditions & Weather

- [Weather Forecasts](#)
- [Winter Storm and Other Emergency Preparedness](#)
- [Cold Stress – Preventing Hypothermia and Frostbite](#)
- [Heat Stress](#)
- [Lighting Safety](#)

Wildlife Biology

- [Guidelines for use of wild animals in research and teaching \(American Society of Mammalogists\)](#)
- [Guidelines to the Use of Wild Birds in Research \(Ornithological Council\)](#)
- [Science Guidelines \(American Fisheries Society\)](#)
- [Resources, Collection & Curation Practices \(American Society of Ichthyologists & Herpetologists\)](#)