

## **Chapter 2: Competency**

This section contains the following sections:

- Important field skills (such as first aid, outdoor leadership, basic outdoor skills, leave no trace skills, and job-specific safety skills)
- General emergency/evacuation guidelines
- Appendix of cheat sheets for managing common field hazards

### **Important Field Skills**

#### **Wilderness First Aid Skills**

Get trained in CPR and *Wilderness* First Aid. A good definition of “wilderness” in this context is being >1 hour from the back doors of an ambulance. Most field situations fit within this definition. Wilderness first aid classes contain much more first responder information and actions than typical community first aid classes. There is no adequate substitute for getting this training. The largest wilderness first aid school in the US is the Wilderness Medicine Institute, which is part of the National Outdoor Leadership School (NOLS). The 2-day Wilderness First Aid (WFA) course and 10-day Wilderness First Responder (WFR) course are both taught at UCSC through the OPERS Outdoor Recreation Department multiple times a year. In the past, scholarships have been available to some graduate students.

#### **First Aid Kits**

Any excursion into the field should carry some basic first aid supplies. There is no perfect first aid kit, but here are some guidelines to consider when assembling one:

- 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 good starting points for creating a first aid kit for your needs. The Wilderness Medicine Institute, a part of the National Outdoor Leadership School, has some great options. You can use the coupon code *Educate2016* to receive 15% off of first aid supplies and books. This code can be used as many times as you need, and they are planning to update the last digits of this code at the beginning of every calendar year (*Educate2017*, *2018*, *2019*...).
- Re-pack your first aid kit for each trip. Check for expiration dates on medications, sterile items that may have been torn open or damaged. Remember to clean out all the trash from your last trip.
- Leave an empty plastic bag in your FA kit for trash. Be strict with all users of the kit to use the trash bag.
- Add extra disposable gloves.
- Often, you have to improvise with what you have with you when you're administering first aid. While many standard first aid kit items can be replaced by improvising with other equipment, there are some items that are very hard to adequately improvise. These include:
  - Latex/nitrile gloves
  - Wound irrigation syringe
  - Athletic tape
  - Trauma shears

- Elastic wraps (Ace wraps)
- Tweezers, preferably pointed for tick removal
- Pocket mask
- Band-aids of various sizes
- Medications (such as antihistamines, epinephrine, over the counter pain and anti-inflammatory medications, etc.)
- Pocket first aid reference
- First aid documentation forms and pencil/pen to write with
- Watch

#### Recommended First Aid references and resources:

- NOLS Wilderness Medicine Field Guide - 4th edition or later. Purchase these at the NOLS Wilderness Medicine Institute Online Store.
- NOLS Wilderness Medicine Pocket Guide - At just \$5, consider having these compact resilient guides in all first aid kits, vehicles, and hiking groups.
- Patient Assessment Form: for recording pertinent medical information about a patient and helping to make patient evacuation decisions

#### Medications

It is best to ask participants to carry their own medications if they are frequent users of pain relievers or have specific prescription medications. It is still prudent to carry some of these medications in a group first aid kit. Here are some suggestions:

- Pain relievers: Ibuprofen, aspirin, and acetaminophen.
- Antihistamines: Benadryl or other common brand name
- Antibiotic ointment
- Anti-itch cream
- Tecnu
- Sunscreen
- Epinephrine: This is an auto-injectable drug that is used when someone has a severe life-threatening allergic reaction (called anaphylaxis) that can cause a patient's airway to swell shut. Epinephrine needs to be ordered from a pharmacy. Currently, the UCSC pharmacy can help order this. Because this is an injectable drug, training is required.

#### **Outdoor 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 whole manual attempts to provide a comprehensive resource for helping faculty learn more of these skills. Many other organizations, both on and off campus, offer much more in-depth training. The UCSC Outdoor Recreation Program sponsors the Experiential Leadership Program (ELP), which offers many relevant classes and a certificate program to anyone (students, staff, and faculty) who wants to improve their group leadership skills, particularly in an outdoor context. See [recreation.ucsc.edu/certifications/elp1/index.html](http://recreation.ucsc.edu/certifications/elp1/index.html) or contact ELP director Miranda Allen at 459-4006 or [miranda@ucsc.edu](mailto:miranda@ucsc.edu).

An excellent written resource is the NOLS Leadership Educator Notebook, which can be ordered from the NOLS online store ([www.nols.edu](http://www.nols.edu)). Much of what is written in this manual was adapted from NOLS (the author was a NOLS instructor for many years).

### **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, hazard evaluation, and other technical skills (such as winter camping or tree-climbing). Several resources on campus may be able to help you get additional training in these skills. These include the UCSC Environmental Health and Safety Department (<http://ehs.ucsc.edu/>) and the UCSC Outdoor Recreation Department (<http://recreation.ucsc.edu/>).

### **Leave No Trace Skills**

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 ([www.lnt.org](http://www.lnt.org)) 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. In the appendix of this manual is a pdf booklet explaining how to adhere to the following seven LNT principles:

- Plan Ahead and Prepare
- Travel and Camp on Durable Surfaces
- Dispose of Waste Properly
- Leave What You Find
- Minimize Campfire Impacts
- Respect Wildlife
- Be Considerate of Other Visitors

### **Field-Specific Skills**

In order to make accurate risk assessments, you need specific 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 toward making more accurate assessments and performing safer actions in the field. Many UC's have specific training opportunities (i.e. scientific diving, boating, UCSC Outdoor Recreation, and UCSC Experiential Leadership Program) You should consult with your EHS department for work at heights or with powered equipment, including chainsaws, ATVs, snowmobiles, etc. Contact your campus EHS department or Sara Souza through UCB EHS for the latest list of safety guidelines and training workshops. There are also many non-UC organizations that teach specific outdoor skills safety. Check out [www.nols.edu](http://www.nols.edu) and the annual [Wilderness Risk Management Conference](#).

### **Emergency/Evacuation Plan(s)**

It is vital to have a clear plan for what to do in the case of an emergency while in the field. When accidents occur, many simultaneous actions often need to happen, both in the field and at the administrative level of your organization back home. Discussing, pre-planning, and practicing scenarios can all help to prepare when a real situation arises.

### Part 1: Field Emergency/Evacuation Considerations

- Pre-planning is key.
  - Research emergency response options where you're going. Carry explicit directions, phone numbers for these resources
  - What equipment do you need?
    - Communication devices (cell phones, satellite phones, radios, etc.)
      - Check on cell service
      - Will you carry a GPS device
      - Consider purchasing or renting a satellite phone. One reputable company that sells/rents these is DeLorme.
  - Do you need additional maps?
  - Talk through a potential scenario with your instructor team
  - Tell someone (your supervisor and your family) where you're going. Leave a detailed itinerary with them so they have some idea where you might be on a given day. This information can be included in your field safety plan.
  - Establish a check-in frequency; leave a local contact number for your family/supervisor back home in case you don't check in. Include this in your field safety plan.
- Use your First Aid Skills if/when a real incident occurs
  - Perform first aid, patient assessment, and thorough documentation
  - Use available resources like first aid kits, drugs and drug protocols, first aid texts, expertise in your group
  - Consider long-term patient care considerations (i.e. if a patient is incapacitated and they need to stay in your care for an extended period of time, how will you help them go to the bathroom, change clothes, etc.)
  - Don't forget to take care of the rest of your group (and yourself).
    - Remember if one of your participants gets really hypothermic, others in your group may be on the verge of hypothermia too.
    - In an emergency, other participants often want (and perhaps need) to feel useful and helpful. Delegate tasks, communicate with all of them as often as you can.
    - Facilitate a debriefing of any extended stressful emergency. If you're uncomfortable leading this yourself, get help to do this for your group.
- Develop an Evacuation Plan - determine type of evacuation needed (is it medical, behavioral, a policy violation? Should it be fast or slow?).
  - Is there an immediate threat to life or limb?
  - Can the patient walk?
  - Distance and difficulty of terrain to get to medical support
  - Group physical and emotional strength, technical abilities
  - Weather conditions
  - Communication possibilities

- Available outside assistance (helicopter, Search and Rescue, etc.)
- Be a leader, organize, and delegate responsibilities
  - Don't be afraid to be directive
  - Keep everyone gainfully occupied
- Document
  - Use Illness/Injury Report Forms notes.
  - Photograph and/or sketch pertinent scenes or environmental factors
- Communicate with Emergency Medical Support and supervisor/ university contact
  - Know and use local EMS to get help. Carry directions, maps, and contact info for nearest local medical facility.
  - Use cell or satellite phones. Be prepared with your message prior to calling:
    - Know what you want
    - Have your documentation ready
    - Be prepared to take notes
    - Communicate your Evacuation plan
      - Patient's first and last name
      - Your location
      - Know your timetable for evacuation
      - Request additional resources
      - Have a back-up plan
  - If electronic communication isn't available, consider runner/messenger teams and evacuation teams
    - Take time to prepare runner teams; send 2-4 people with 1 instructor if at all possible).
    - Always have a timetable and plan for returning the runner party to the field
- Helicopter specific guidelines
  - If requesting a helicopter, additional information may need to be communicated
    - Number and weight of patients
    - Wind speed and direction
    - Current weather conditions
    - Lat/Long and elevation of landing site
    - Geographical description of landing site
  - Landing sites
    - Signal or compass mirror can be used to catch eye of pilot
    - Maintain visual contact until helicopter has landed.
    - Mark landing zone with securely anchored brightly colored markers.
  - Safety around a helicopter
    - Approach only when pilot motions to do so. Always stand where the pilot can see you.
    - Never walk in front of a helicopter or approach it from uphill.
    - Stay low whenever near the rotors

Part 2: Administrative Emergency/Evacuation Considerations: In the event of a serious incident:

- Does your supervisor have a plan to initiate a crisis management team? What's the clear chain of command/responsibility?
- Administrative Communication Management
  - Get the facts of the event ASAP
  - Communication with field incident leaders: things like witness statements, evidence (photos/sketches), site visits to re-create the story are all important
  - Who writes press releases and how are they managed? How to handle both internal and external communications?
  - Family notification and interaction: done ASAP by a high-level administrator; continual contact is also important.
- Incident review: might include in-depth interviews with students and staff, course records, police reports, etc.
- Practice scenarios can be very instructive

### **Appendix: Cheat-sheets for Managing Common Hazards**

Many safety guidelines have been developed for dealing with common field hazards. Consider carrying a list of these common guidelines (or adapt them to suit your needs) and go over them with your staff and students before you encounter these hazards in the field. The following are guidelines for managing common environmental, animal-related, and other common situation. Additional printable resources can be found at:

UCSC field safety page: <http://ehs.ucsc.edu/programs/research-safety/field-research.html>

UCB diseases and hazards page: <http://ehs.berkeley.edu/field-safety/diseases-and-hazards>

#### **Environmental Hazards**

- Heat Illness
- Hypothermia
- High Altitude
- Poison Oak

#### **Animal Hazards**

- Ticks
- Rodents & Rabbit safety
- Reptile safety
- Pininiped safety
- Cetacean safety
- Fish safety
- Venomous snakes (mainly rattlesnakes)
- Marine envenomations

#### **Common Field Situations**

- Primer on first aid kits
- Avoiding getting lost (or staying found)
- Independent participant travel/work
- Swimming safety
- Steep/rugged terrain
- Personal hygiene and water sanitation
- Urinary tract infections: prevention and treatment
- Driving safety
- Managing pre-existing medical conditions
- Wildland fire safety
- Confronting (potentially dangerous) strangers in the field