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It is well known that one of the most important phases of field research is the preparation done before you leave for the field. A critical element of that preparation is the field safety plan. The purpose of this guide is to assist with completion of a field research safety plan using the template provided by OEHS.

A copy of the completed field safety plan must be filed with departmental contact listed on the plan and must be maintained at the field location and in all vehicles associated with the project for the duration of field operations.

This guide provides instruction for completing the field research safety plan (found in appendix B) section by section. OEHS personnel are available to assist if needed. Contact OEHS by calling 801-581-6590.

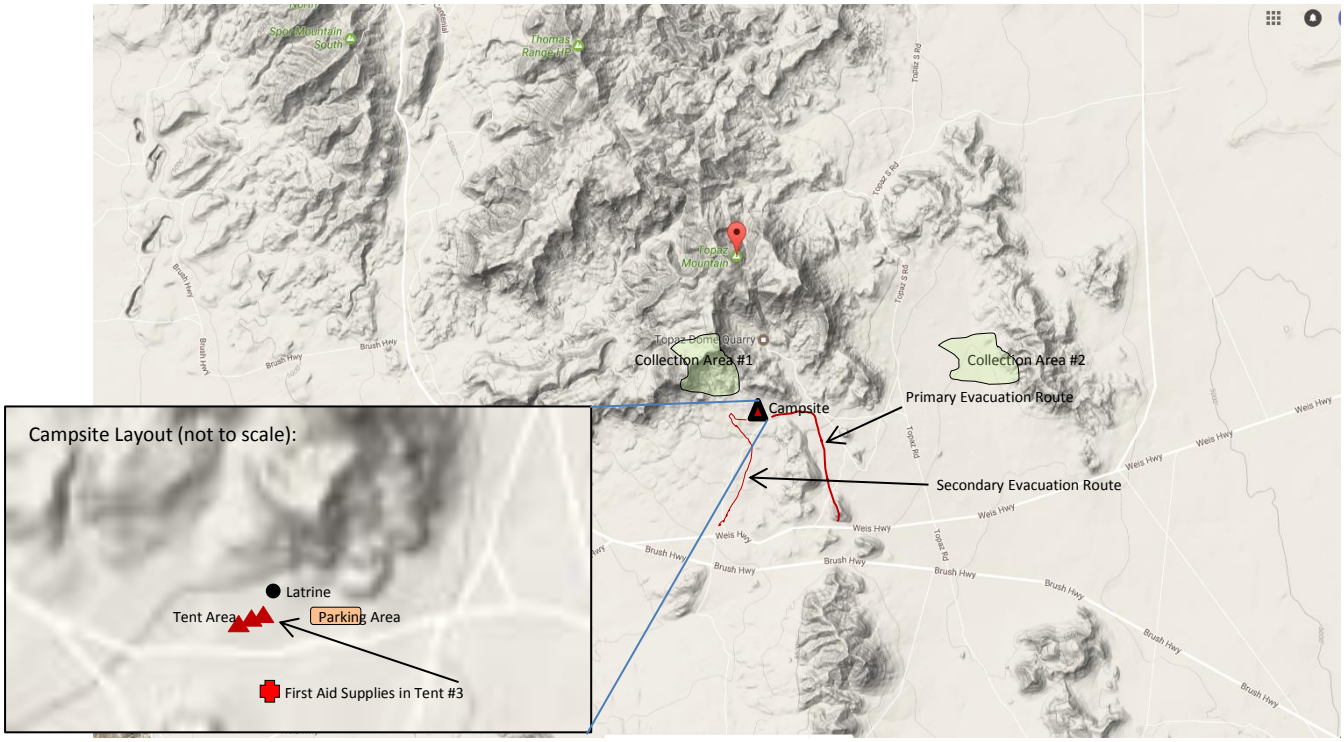
Section 1 – Project Information and on-site contacts

Complete all fields in this section as indicated on the template. The information contained in this section is critical in the case of emergency situations which would require contact with field research personnel. Failure to fully complete this section breaks a vital link between campus and field operations.

In remote areas where direct contact is not feasible, identify the contact information for people or groups, at or near the field research location who know the location of the field research location and can reach you if necessary. Field personnel should check in with their group office on campus regularly, and should advise the group office of any changes in schedule or points of contact.
Whenever possible, field personnel should also inform someone in their work locale (for example, local search and rescue personnel, police, sheriff, or motel employee) each day about the daily fieldwork location and the approximate time of return. After each day's work, field personnel should notify the contact when they return. The local contact should be provided with a copy of page 1 of the field research safety plan containing the 24 hour emergency contact information to call if the workers do not return or report in within a predetermined interval of the scheduled return time.

Section 2 – Site map

Include a map of the field research site which includes labeled details such as the camps location, emergency evacuation routes, latrine facilities, location of field operations etc. An example is shown below:



Section 3 – Medical and Sanitation Plan.

Required Vaccinations and/or Medical Exams:

Travel to certain areas, especially international destinations, may require specific vaccinations prior to travel. In some cases the vaccinations are provided as a series and require a significant amount of time in order to complete the series. Plan ahead and make sure that all required vaccinations have been completed prior to traveling to the field location.

Consult with one of the following travel clinics to determine what vaccinations may be required:

University of Utah Travel Clinic: University of Utah Hospital, Clinic 1, 801-581-2898

Email: travel.clinic@hsc.utah.edu

Salt Lake County Travel Clinic: 2001 S State Street, Suite S2-400, 385-468-4111

Work with certain biological materials may also require vaccinations. Consult with OEHS biosafety, 801-581-6590, if you will be working with biological materials or collecting biological specimens.

Work with a respirator and other situations may require a medical examination prior to beginning field work. Consult with OEHS to determine if medical exams are required.

List all required vaccinations and medical exams that are required by field personnel prior to initiating field operations.

Emergency Medical Supplies:

Describe the location of all first aid and other medical supplies available for field research personnel. If there are multiple sites where these resources are available describe each location and identify the type of resources that are available in each location. For example: Truck #1 – large 1st aid kit, AED; Truck #2 small 1st aid kit; Truck #3 large 1st aid kit. All field research personnel should be trained in First Aid and CPR/AED. Training is available on campus via the Center for Emergency Programs (801) 581-4512 or the Red Cross. It is recommended that personnel that will be working in remote locations take a wilderness first aid course.

At a minimum all field research operations must be equipped with a first aid kit appropriate for the work being conducted in the identified location(s). A small personal first aid kit will not be adequate for large scale field research operations in a remote location. In addition to basic first aid supplies it may be prudent to have other emergency medical equipment such as field deployable automated external defibrillators. AED units are available to borrow from OEHS. Some departments also have AED units for loan.

Personnel with unique medical needs should review the proposed field work with their health care provider and make any necessary arrangements for specialized equipment or medication that may be needed prior to participating in field research operations. They should disclose this information to on-site personnel or carry a medical alert card with detailed emergency instructions. For example: a member of the field research team carries an epi-pen due to an extreme allergy to bees. Ideally this should be disclosed to members of the research team and some basic training on how to use the device provided.

Emergency Procedures:

List all procedures for what to do in the event of an emergency. Include details for any situations that may arise as a result of the field research work (eg: animal bites, etc.)

Describe in detail the procedure to contact emergency medical services. Keep in mind that in remote locations where cell phone service is not available you will need to have an alternative method for summoning emergency medical services. This is often accomplished via satellite phone, long distance shortwave radios, etc.

List the location and contact information for the medical facility nearest to the field location. Describe the type of medical services they are capable of providing, directions to the facility from the field research location, and the travel time required to reach the facility.

Sanitation:

Describe the procedures and facilities related to the provision of clean water for drinking, cooking, and washing.

Describe provisions for proper hand washing.

Describe all provisions and procedures for

If you can pack out generated waste – do it. However, some types of waste, for example human waste and leftover water from cooking and cleaning, cannot be packed out. Human waste must be disposed of properly; correct disposal prevents pollution of water, spread of illnesses such as Giardia, and preserves the natural aesthetics of the location for others. Some designated sites have outhouses or restrooms. Whenever possible, use these facilities. Where they do not exist follow the four guiding principles of wilderness sanitation: avoid polluting water sources, eliminate contact with insects and animals, maximize decomposition, and minimize the chance of social impacts. The following options are recommended:

Catholes: An individually dug "cathole" is the most widely accepted means of backcountry waste disposal. Catholes should be located well away from water, trails, camp and gullies. Use 200 feet as a good guideline, but remember that local regulations or environmental factors may dictate greater distances. Catholes should be widely dispersed. Choose a site that other people will be unlikely to accidentally discover. In winter season when terrain is snow-covered, seek dry ground for cathole sites. Human waste buried in snow does not decompose and may be exposed when the snow melts. With a small garden shovel, dig a hole four to six inches deep and four to six inches wide in diameter. After use, mix some soil into the cathole with a stick, cover it with the soil plug, and disguise it with natural materials. It is inappropriate to deposit human waste under rocks, because the rock inhibits heat that aids decomposition.

Latrines: A latrine is the most basic form of improved sanitation available and is different from a cathole in that more than one person will use the latrine more than one time. A latrine is a dug out pit as deep as possible, at least 1.5 meters; it should also be at least two meters above the water table. The latrine will have a cover on top with a hole through which excrement falls through. Latrines should be at least 30 meters away from any water source, rivers, lakes, streams or wells and at least 6 meters away from housing. The use of a latrine vs. a cathole depends on the region where research is being done; further research of what is preferred in your area of travel should be done before leaving.

Urination: Urine has little direct effect on vegetation or soils. Research indicates that urine poses little threat to human health. However, the odor of urine can create an aesthetic impact, and animals occasionally paw up the ground and defoliate plants to get the salts deposited from urine. Try to urinate on rocky or sandy areas away from camps.

Toilet paper and feminine hygiene products: Use un-dyed and unscented toilet paper sparingly. Toilet paper must be disposed of properly! A proper method for packing out toilet paper is to use doubled plastic bags, this effectively confines the odor.. Burying toilet paper or used feminine hygiene products is unacceptable because of slow decomposition and the high likelihood that animals will dig it up. Toilet paper should not be burned — it rarely burns completely and is a fire hazard.

Minimize soap and food residue in waste water. Biodegradable soap is available in most stores and should be used; when possible, hot water alone can handle most cleaning chores. Remove all food bits from the water before disposing of it (a small strainer is a good tool for this), and pack these particles out with excess food and other litter. Waste water should be scattered over a wide area, away from camps and all water sources.

Another option is to use a sump hole for depositing waste water from cleaning dishes. This is a hole dug similarly to a cathole that is re-covered after use. Sump holes concentrate waste water and associated food odor, localizing it in the kitchen area, rather than broadcasting it over a larger area. If possible, minimize erosion of natural sites and damage to vegetation by moving the campsite/tent often and vary walking paths.

Section 4 – Field Personnel Roster

List ALL personnel that will be participating in the field research operations. List a 24 hour contact number for each individual. In cases where cell phone service is not present at the field location list both their cell number and any other methods of communication such as radio number or call signs that can be used to contact the listed individual.

List an emergency contact for each person on the roster. This would be the person you would contact in the event that an emergency involving the listed individual were to occur.

Identify the category into which each individual falls: student, staff, volunteer, First aid trained, and/or AED/CPR trained.

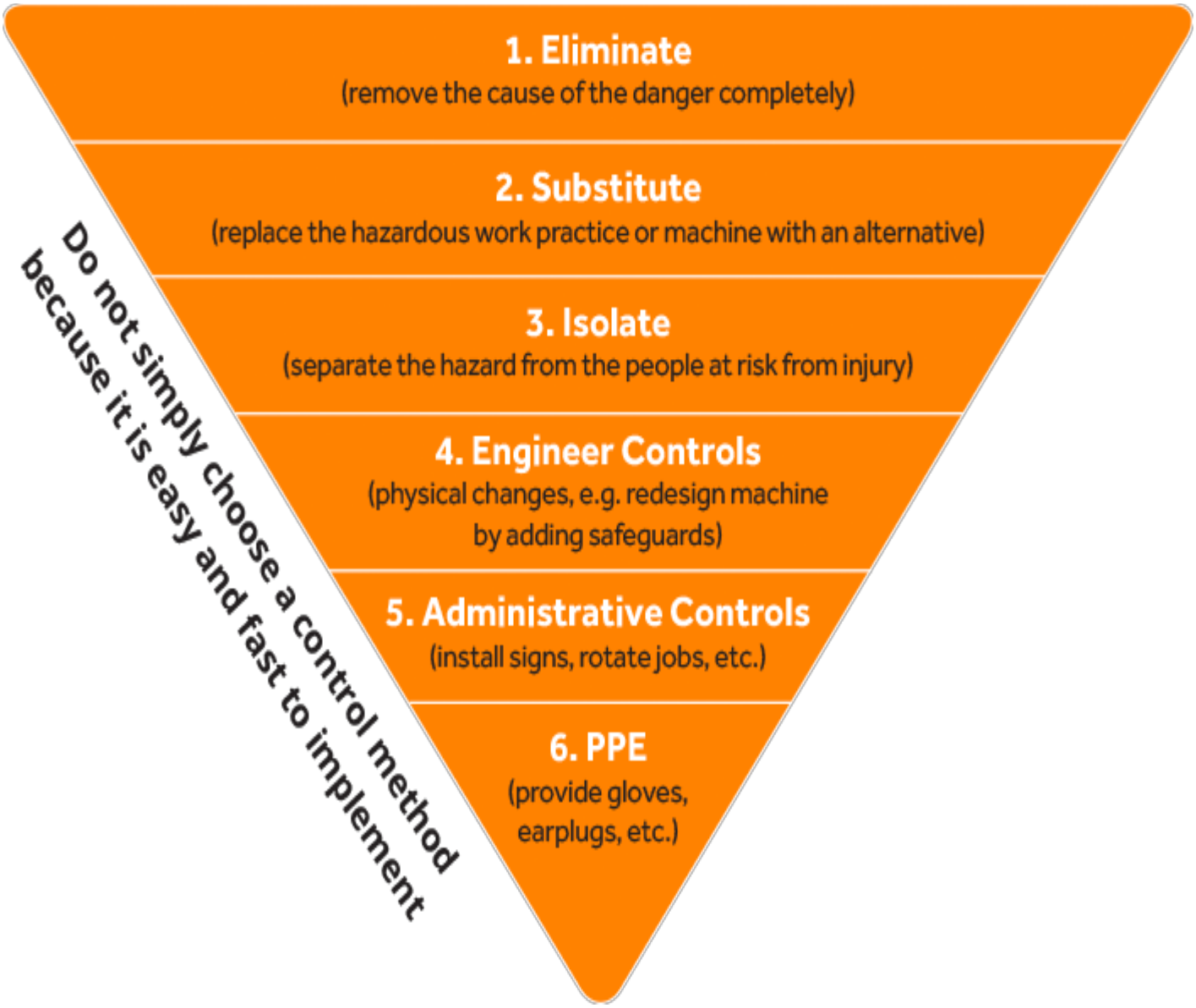
Section 5 – Project Description

Provide a brief description of the field research project.

Section 6 – Project Risk Assessment

During field research operations there are many inherent hazards due to the nature of the work being conducted. The presence of a hazard does not preclude conducting the work as long as appropriate control measures are in

place to reduce the risk of the identified hazard to a minimal level thereby be reducing the probability of an injury or incident. When identifying control methods to minimize risk it is important to utilize the hierarchy of controls as shown below:



The best way to control a hazard is to eliminate it altogether, and then try to substitute with a less hazardous operation and so forth moving down the pyramid until the best control method is identified.

In this section a risk assessment for the project will be conducted and documented. The risk assessment process is not complicated but should be done with attention to detail. Appendix A contains information on a number of hazards that can be associated with field research work to assist with completion of the risk assessment – it is not considered to be a comprehensive list of hazards. Each situation will be unique. OEHS staff are available to assist as needed.

The risk assessment process:

Step 1: Identify and document all job tasks or categories of job tasks that will be included in the field research.
Step 2: Identify and document the hazards associated with each task or category of tasks.
Step 3: Identify and document the controls that must be used to control any identified hazards.
Step 4: Identify and document any required training, general PPE required for all field tasks, and any other general control measures needed.

An example of a completed risk assessment is shown below:

Project Risk Assessment (add additional lines as needed):		
Job Task	**Identified Hazards(s)**	**Control Measures:**
Rock sample collection	Eye injury	All personnel must wear safety glasses at all times while collecting (personal prescription glasses are not adequate unless rated as safety glasses).
	Crushing (use of a sledge hammer and rock picks)	All personnel must wear heavy duty leather gloves and steel toed boots while collecting.
	Noise (when using sledge hammer on large rocks)	Earplugs are required only when using the sledgehammer.
	Snakes (rattlesnakes are common in the area where we will be collecting)	All personnel will receive training on how to work in rattlesnake habitat including what to do in the event of a bite. Heavy duty hiking boots and long pants are required when collecting.
	Sunburn	All personnel must wear long sleeved shirts, a hat that shades the head and neck, and sunscreen.
	Heat Stress	All personnel must carry at least 2 one-liter containers of water on their person at all times. A large water cooler will be provided in the truck at the collection site. All personnel will receive training on the signs and symptoms on heat stress as well as the first aid procedures for dealing with heat exhaustion and heat stroke. Individual with symptoms of heat stress will be required to sit in a shade area while drinking extra fluids until symptoms subside.
Etc.	**Etc.**	**Etc.**
Training required:	**General PPE required:**	**Other general control measures:**
Heat stress Rattlesnake awareness Wilderness fire safety	Long sleeved shirts Long pants Steel toed hiking boots	Buddy system is mandatory. All personnel will work together in pairs and say within visual range of each

	Hat that shades the head and neck from the sun	other at all times.

Section 7 – Travel Plan

Include a detailed travel itinerary. Include information for all trips that will be included as part of the field operations. Be as detailed as possible and then attempt to stick to the itinerary as much as possible during travel.

All vehicle used for travel and associated vehicle insurance information must be listed for each vehicle, including personal vehicles.

Only individuals with authorization, and who have completed the State of Utah Risk Management Driver Training course, are allowed to drive vehicles. List all authorized drivers, their University ID number and the date of their driver training completion as indicated on the form.

Travel restrictions and advisories:

Many areas have restricted access policies in place as well as restrictions on the types of activities that may be conducted in a given locale. Travel to international destinations in particular can present significant hazards due to geo-political conditions in the area. Check with local authorities for restrictions in domestic areas.

For international travel, consult with the US State Department's travel advisories web page: https://travel.state.gov/content/passports/en/alertswarnings.html
You may also consider enrolling your trip in STEP. STEP is a free services offered by the US State Department which allows you to register your trip with the US consulate nearest the location where you will be working. For more information on STEP visit: https://step.state.gov/step/

Section 8 – Hazardous Materials

In this section list all chemical, biological, and radiological materials that will be used during field operations. Note: some materials may require prior approval before use in the field – consult OEHS or Radiological Health.

For listed chemical a current SDS sheet must be on site and available to field personnel for the duration of field operations. Attach all relevant SDS to the field safety plan. Field personnel must be trained on the use and hazards associated with any chemicals used in the field. Containers must be properly labeled and stored. Any chemical use must be addressed in the risk assessment section of the field safety plan.

For disposal of unwanted hazardous materials please consult with OEHS on appropriate disposal practices. List all disposal procedure in the field safety plan document.

Section 9 – Standard Operating Procedures

Written standard operating procedures (SOPs) help to reduce risks as well as helping to maintain consistency in research outcomes. Prepare SOPs for all routine processes or tasks that will occur during field operations. List the title for all SOPs related to the project in this section and attached copies.

Section 10 – Training

All personnel involved in the field research operation must be provide a copy of the field safety plan and received training on all elements of the plan and any additional training identified in the plan. Each person is responsible for completing tasks safely, and reporting any unsafe acts or conditions to his or her immediate supervisor or to the Site Supervisor (PI).

Document that each individual has received a copy of the plan and proper training, have them sign the training roster indicating that they understand the provisions as outlined in the field safety plan and agree to abide by the procedures identified.

A copy of the field safety plan should be maintained on site and in all vehicles for the duration of field operations.

APPENDIX A

Machine and Tool Safety

Drill presses, table saws, band saws, grinders, milling machines, and a variety of small tools are used on many field sites. Never use machinery without proper training or appropriate guards. Ask your supervisor for training if you do not know how to use a piece of machinery or a power tool.

Machine Safety Guidelines

1. Get training before using machines
2. Read and follow all instruction manuals
3. Select the appropriate machine/tool for the job
4. Use required PPE and guards
5. Set up before starting. Change dull blades, clamp work and secure bits
6. Make sure operating controls are clearly labeled and easy to reach
7. Unplug and make sure that blades, rotors, etc. have stopped completely before making adjustments to the equipment.
8. Do not leave equipment until it has come to a complete stop.
9. Keep all tools in good condition with regular maintenance.
10. Use the right tool for the job. Never use a tool for something other than for what it was intended.
11. Examine each tool for damage before use.
12. Operate tools according to the manufacturer's instructions.
13. As part of the risk assessment identify and document appropriate PPE for any hazards such as dust, fumes, mists, etc. that may be generated due to operation of the equipment.
14. Work with a partner in the "buddy system."

Noise

Prolonged exposure to noise exceeding 85 decibels can cause permanent hearing loss. Short term exposure to loud noise can also cause a temporary change in hearing (your ears may feel stuffed up) or a ringing in your ears (tinnitus). These short-term problems may go away within a few minutes or hours after leaving the noisy area. However, repeated exposures to loud noise can lead to permanent tinnitus and/or hearing loss.

Noise may be a problem if:

- You hear ringing or humming in your ears when you stop work.
- You have to shout to be heard by a coworker an arm's length away.
- You experience temporary hearing loss when you stop work.

Hearing protection may be indicated if any of these conditions exist, OEHS can assist with assessing noise issues as well as recommendations for hazard control.

Vehicle Safety

University policy regarding use of vehicles:

The following rules were developed by an ad hoc committee with representation from Academic Affairs, Health Sciences, Student Affairs and Services, Athletics, and Administrative Services. They were presented to the Council of Academic Deans in February. Please note that the rules are in addition to existing provisions of University Policy 3-030 (Travel)and 3-215 (University Motor Vehicles).

Applicability

"Large van" means any passenger van larger than a seven-passenger mini-van that is owned by the University or is borrowed, rented or leased from the University, State Fleet Services, commercial rental agencies or any other outside party. This includes 12 and 15 passenger vans.

Rules

1. Departments are prohibited from renting 15-passenger vans from State Fleet Services and commercial rental agencies.
2. Departments are prohibited from a) purchasing or leasing 15-passenger vans, and b) use of any 15-passenger vans that are personally-owned, borrowed, or donated, effective immediately.
3. Departments are prohibited from towing trailers with 12 or 15-passenger vans.
4. All 15-passenger vans owned by the Motor Pool and departments must be eliminated by December 31, 2006.
5. K-12 aged children may not be transported in 12 and 15 passenger vans, except for trips within the Salt Lake Valley that do not involve travel on a freeway.
6. Each driver must have a valid driver's license.
7. If the van is going outside the Salt Lake Valley, drivers must be at least 21 years old. Within the Salt Lake Valley, drivers who are 18-20 years old are allowed, but only if the trip does not involve any freeway driving.
8. Each driver must be able to indicate to the cognizant department head or principal investigator that he/she has not within the past year:
    - Caused an accident without subsequently completing an approved driver training course,
    - Been convicted of driving under the influence of drugs or alcohol,
    - Received a citation for reckless driving.
9. Before driving a large van, each operator shall attend an orientation at the University Motor Pool even if the van is not rented from the U Motor Pool. The orientation is intended to familiarize drivers with van operations, safety guidelines and risks, and includes hands-on driving experience.
10. The maximum number of occupants, including the driver, shall be nine.
11. An operator shall not drive a large van for more than 4 continuous hours without switching off with another trained driver. If it is not possible to switch with another driver, a mandatory rest stop of at least one hour is required after 4 hours of driving. No driver can drive more than 8 hours in a 24-hour period.
12. Large vans cannot be driven between 1:00 a.m. and 5:00 a.m.
13. Drivers must obey applicable speed limits and slow down in adverse weather conditions. Seat belts must be worn at all times by all occupants.

Basic rules and safety reminders must be prominently posted in University-owned vans, including notice that:

- Seat belts must be worn by all occupants at all times.
- Compliance with speed limits is required.

- Alcohol is not allowed in the vehicle. Operators must not have consumed alcohol within 6 hours of operating the vehicle.
- Failure to comply with University requirements can result in a loss of rental privileges and/or disciplinary action, including termination.

14. If exceptional circumstances appear to warrant departure from these rules, advance approval must be obtained from a Cabinet member (ordinarily the Cabinet member with management responsibility for the organization seeking the exception). Whenever an exception is granted, the Cabinet member should notify the Risk and Insurance Management Department in writing.

For ongoing reference these rules may be found at both the University Motor Pool and Risk and Insurance Management web sites, along with safety tips and other information regarding rental and operation of sedans and other vehicles.

Obey traffic laws, wear your seatbelt, do not drive impaired, do not use a cell phone while driving, do not speed or drive recklessly. Before moving any vehicle complete a cursory walk around the vehicle to make sure nothing is in the way that would cause damage to the vehicle or that the vehicle could damage. Always make sure belongings and heavy loads are secured in the bed of the truck. Before leaving to the research site conduct an assessment of the vehicle checking for leaks or other damage. When driving off road, be aware of what you are driving over, high centering a vehicle or driving over something too tall can damage the underside of the vehicle and cause leaks. In case of leaks, place a pan under the vehicle to contain the oil or antifreeze. When leaving camp check where vehicles were parked and check for spills; scoop out the contaminated soil and transport it back for proper disposal.

When driving an ATV (All Terrain Vehicles) or other 4X4 vehicles, some rules are different but general safety practices should be followed. Do not drive impaired, do not drive tandem, wear protective equipment (helmets), take a safety course, do not drive with passengers and do not drive on paved roads. In the event of an accident with an ATV or a general vehicle: Call 911, secure the scene, do not move victim, check airways, breathing and circulation and treat specific injury. To protect the natural habitat do not cross streams in vehicles when possible, this disturbs the riparian areas and can damage the natural habitat.

Lost Person

Preventative Search and Rescue training is important to help ensure members of groups do not get lost. The National Park Service provides podcasts and pamphlets to aid with training. All personnel should receive training such that they are familiar with the area, utilize the buddy system whenever possible, and are properly equipped with appropriate emergency equipment such as a typical sports whistle to summon help if needed, compass and map, gps, locator beacon, etc. Basic wilderness survival training may be prudent for very remote locations

If a person does manage to become lost, return to the nearest trail if possible and wait on the trail. If returning to a trail is not an option, find a safe and sheltered place to wait, DO NOT keep walking, start blowing the whistle at regular intervals to alert anyone in the area to your location.

Avoiding Rodent-Vectored Diseases

One of the best methods for avoiding rodent borne disease is to make the area unattractive to rodents. Cover or repair holes in buildings, keep the area clean of trash, and store food carefully to prevent attracting rodents. Do not camp near rodent burrows. If rodent feces or dead rodents are discovered, use the following methods to clean the area:

- Indoors: **Do not stir up dust**. Ventilate the area by opening doors and windows for at least 30 minutes to diffuse potentially infectious aerosolized material. Use cross-ventilation and leave the area during the airing-out period.
- Dead Rodent: Use gloves; soak the rodent, droppings and nest with a solution of 1 part bleach to 9 parts water. Let soak for at least 15 minutes before picking it up with a plastic bag. Place bag in a second plastic bag.
- Rodent Feces: Do not sweep or vacuum rodent droppings. Spray the droppings with a 1:10 dilution of bleach, let soak for at least 15 minutes, and then wipe up the droppings. If possible, wet mop the area with the bleach solution.

Note: Work with rodents in the field may require additional precautions

Fire

Having a camp fire is common practice, but knowing how to maintain a fire is crucial for safety to a person's health and preservation of the natural landscape. Check with local authorities to determine if camp fires are allowed in the area you will be working in. In many situations it is dangerous to have a campfire due to wild-fire risks; if a fire is used, follow these safety guidelines.

- Clear area of all debris/avoid area with overhanging branches
- Construct a fire ring surrounded by rocks, always use existing fire rings if present
- Have a bucket of water, shovel and a fire extinguisher nearby and ready to put out a fire
- Gather wood and stack in separate piles away from fire area.
- Never leave a burning fire unattended
- Never build a fire near tents or other flammable items.
- Never use flammable fluids to start a fire.
- Build a fire only as big as you need.
- Make sure to completely extinguish fire.
    - Drench with water. Stir with a stick. Repeat.
    - Drench charred logs.
    - Repeat until everything is cold.
    - Scatter ashes or embers

Fires should be burned down to ash or very small coals, as this helps minimize the impacts of the fire. Once the fire debris is completely cold, remove any litter, and any unused wood, scatter unused wood in the forest. If a fire ring is full of ashes, consider scattering the cold ashes away from camp over a wide area of vegetated ground. They will mix into the soil of the forest floor and mimic the remains of natural forest fires. Disperse the rocks that made up the ring back where they came from or in a more natural fashion.

Table 1: Animals and Pests - General and North American

Type	Location	Hazard	What to do if Encountered	First Aid	Prevention
Mosquitoes	Worldwide - wet areas productive to breeding	West Nile Virus – Refer to Table 7: Disease - General Malaria - Refer to Table 8: Disease - international		Use topical ointment to relieve itching	- Use insect repellent - Don't leave standing pools of water - Wear long sleeve clothing and long pants - Use mosquito netting at night
Rodents	Worldwide		If possible, do not disturb	Clean wounds thoroughly if bitten or scratched	- Keep areas clean to avoid attracting rodents - Store food in sealed containers Where appropriate gloves if you are working with rodents. Glvoes should protect against bites as well as contamination with urine and feces. It may be prudent to wear a disposable glove over a leather glove.
Conenose "Kissing" Bugs	North and South America	May cause allergies in some people. In Latin American they can carry a protozoan, *Trypanosoma cruzi*, which causes Chagas' disease. See Section 4: Diseases		Use topical ointment to relieve itching. Seek immediate medical attention if an anaphylactic reaction occurs	- Use caution when working near nests or wood rat dens - Use caution when working near rock shelters

Type	Location	Hazard	What to do if Encountered	First Aid	Prevention
Sharks	Worldwide	Great White, Bull, Tiger, Oceanic, White Tip	Call for help, swim for safety, punch or kick the shark if necessary	Seek medical attention for wounds or serious injury	- Never swim alone - Don't wear sparkling jewelry - Don't enter water when bleeding
Crocodiles and Alligators	Worldwide – Tropics and subtropics – North America, Australia, Africa, Eastern China	American Alligator (North America), Estuarine Crocodile (Australia), Nile Crocodile (Africa)	Do not provoke an alligator or crocodile	Seek medical attention for serious injuries or wounds	- Avoid waters known to be home to crocodiles or alligators - Keep at least 30 feet away from any crocodile or alligator
Bears	North America	Black Bear (North America), Grizzly Bear (Alaska, Western Canada, Pacific Northwest), Polar Bear (Arctic)	- Do not run - Move slowly and speak in a low soft voice - If attacked, lay in the fetal position and protect head - Play dead	Seek medical attention immediately for serious injuries or wounds	- Follow advisories for your area - Keep food out of sleeping areas - Never approach a bear (or bear cub) - Wear a bell or other noisemaker - Stay away from the bear's food supply

Type	Location	Hazard	What to do if Encountered	First Aid	Prevention
Mountain Lions	North, Central and South America	All	- Do not run, back away slowly, do not corner it - Do not play dead, look it in the eyes - Make yourself look larger (arms overhead), do not bend down - Use a loud voice - Throw sticks or rocks - Fight back, poke it in the eye with your thumb - Protect your neck and head	Seek medical attention immediately for serious injuries or wounds	- Do not leave children or pets unattended - Avoid hiking, biking, jogging alone or other outdoor activities when mountain lions are most active, dawn, dusk, and at night - Avoid walking near dense growth, rock outcroppings, ledges - Always look up and behind you - Carry pepper spray
Snakes	North America, Mexico	Rattlesnakes, Cottonmouths, Coral Snakes, Moccasins, and Copperheads	- Do not pick up, disturb, or corner it - Move away from the snake - Avoid locations where snakes may be	- Let the wound bleed freely for 30 seconds - Apply a cold pack - Keep area immobilized at heart level - Seek medical attention immediately (alert ahead if possible)	- Walk in open areas - Wear heavy boots - Use a stick to disturb the brush in front of you

Type	Location	Hazard	What to do if Encountered	First Aid	Prevention
Spiders	North American	Black Widow, Brown Recluse	- Do not pick up or disturb a spider	- Clean wound - Apply a cold pack - Keep area immobilized at heart level -Seek medical attention immediately (alert ahead if possible) - Avoid locations where spiders may be such as dark places	- Use care around rock piles, logs, bark, gardens, outdoor privies, old buildings - Wear gloves when working outside - Shake out clothing and bedding before use
Scorpions	North America – especially Arizona, Southeast California, Utah and Mexico	All	- Do not pick up or disturb a scorpion - Avoid locations where scorpions may be	- Clean wound - Apply a cold pack - Keep area immobilized at heart level - If needed use painkiller or antihistamine -Seek medical attention if no signs of improvement	- Shake out clothing and bedding before use - Avoid lumber piles and old tree stumps - Wear gloves when working outside
Bees, Wasps, etc	North America	Bees, wasps, hornets, and yellow jackets, Africanized Killer Bees (Southeast United States)	- Avoid wearing bright colors, flower prints and perfume - Move slowly or stand still (don't swat at insects)	- Remove the stinger - Apply a cold pack - Keep area immobilized at heart level - If needed use painkiller or antihistamine	-Bring medication if you have an allergy (the sting may be fatal) - Keep scented foods, drinks and meats covered - Wear shoes outside

Type	Location	Hazard	What to do if Encountered	First Aid	Prevention
Fleas and Ticks	North America	Refer to Section 4: Diseases	- Avoid shrubbery - Stay on widest part of path	- Remove the flea or tick with tissue or tweezers - Clean wound with antiseptic - Pay attention for signs of illness (see Section 4: Diseases) and seek medical attention if needed	- Wear long clothing with tightly woven material -Wear insect repellent - Tuck pants into boots - Drag cloth across campsite to check for fleas/ticks
Centipedes	North America	All	- Do not pick up	- The bite is more painful than harmful	- Avoid cracks crevices and underneath boards - Avoid dark moist places

Table 2: Animals and Pests - International

Type	Location	Most Dangerous Species	What to do if Encountered	First Aid	Prevention
Bears	Worldwide (Arctic, South America, Asia)	Polar Bears (Greenland and North Russia), Spectacled Bears (North and West South America), Asiatic Black Bears (South and East Asia)	- Do not run - Move slowly and speak in a low soft voice - If attacked, lay in the fetal position and protect head - Play Dead	Seek medical attention immediately for serious injuries or wounds	- Keep your camp area free of garbage and food waste - Never feed or approach a bear (especially a cub) - Stay away from the bear's food
Large Cats	Africa and Asia	Lions, Tigers, Leopards, Panthers	- Do not startle - Do not run - Do not look it in the eye - Make yourself look larger	Seek medical attention immediately for serious injuries or wounds	- Stay inside the vehicle if travelling near lions - Do not camp in areas frequented by lions - Do not sleep outside - Do not provoke

Type	Location	Most Dangerous Species	What to do if Encountered	First Aid	Prevention
Other Large Land Dwellers	Africa and Asia	Hippos, African Elephant, Rhinos, and Buffalo (Africa); Asian Elephants	Do Not Startle	Seek medical attention immediately for serious injuries or wounds	- Stay inside the vehicle if travelling near large animals - Do not camp near areas frequented by large animals -Keep a look out in open spaces -Do not provoke
Water Dwellers	Worldwide (Especially Australia)	Blue Ringed Octopus, Box Jellyfish, and Irukandji Jellyfish (Australia); Stonefish (worldwide)	Never touch an unidentified octopus or jellyfish	- Jellyfish/ Octopus sting use vinegar on wound - Stonefish sting rinse with warm water - Seek medical attention	- Avoid going in waters known to be inhabited by jellyfish and octopus - Wear sandals or water shoes in the water to avoid stepping on a stonefish
Snakes	Worldwide	Russel's Viper, Indian Cobra (India); Tiger, Black, Brown, Sea Snakes (Australia); Egyptian Cobra, Puff Adder, Saw Scaled Viper (Africa); Fer-de-lance (Central and South America)	- Do not pick up, disturb, or corner a snake - Move away from the snake	- Let the wound bleed freely for 30 seconds - DO NOT suck venom out of wound - Apply a cold pack - Keep area immobilized at heart level - Bring victim to hospital (alert ahead if possible)	- Walk in open areas - Wear heavy boots - Use a stick to disturb the brush in front of you

Type	Location	Most Dangerous Species	What to do if Encountered	First Aid	Prevention
Spiders	Worldwide	Funnel Web and Redback Spiders (Australia); Brazilian Wandering Spider, Brown Recluse, and Tarantula (South America)	- Do not pick up or disturb a spider - Avoid locations where spiders might be such as dark places	- Clean wound - Apply a cold pack - Keep area immobilized at heart level - Bring victim to hospital (alert ahead if possible) - Kill spider for positive ID	- Use care around rock piles, logs, bark, outdoor privies, and old buildings - Shake out clothing and bedding before use - Wear shoes outside - Wear gloves when working outside
Scorpions	Worldwide (especially North Africa, The Middle East, South America, and India)	All	- Do not pick up or disturb a scorpion - Avoid locations where scorpions may be	- Clean wound - Apply a cold pack - Keep area immobilized at heart level - Use painkiller or antihistamine if desired - Seek medical attention if no improvement	- Shake out clothing and bedding before use - Avoid lumber piles and old tree stumps - Wear gloves when working outside

Table 3: Physical and Environmental Hazards - General

Hazard	Location	Cause	Symptoms	First Aid	Prevention
Boating Accident	Worldwide	- Fatigue - Impaired driving - Driver error - Water conditions	- Various Trauma Injuries	- Call 911 and coast guard - Check airways, breathing and circulation - Treat specific injury	- Proper training and certification - Don't speed - Don't drive impaired - Wear life jackets

Hazard	Location	Cause	Symptoms	First Aid	Prevention
Slips, trips falls	Worldwide	- Loose, irregular or slippery surface - Wrong footwear - Poor lighting - Obstruction - Improper (or lack of) use of ladders -Inattention or distraction	- Strains, fractures, bruises and contusions (head, wrist, elbow, shoulder, back, hip, knee, ankle)	- Seek medical assistance for injuries that inhibit regular movement: sprains, broken bones etc	- Proper "housekeeping" - Wear proper footwear - Adequate lighting - Don't carry oversized objects - Use ladders properly
Dehydration	Worldwide	Insufficient water intake	- Increased thirst - Dry mouth - Flushed face - Dizziness - Headache - Weakness - Muscle cramps - Dark urine	- Drink plenty of fluids - Take frequent rest breaks - Minimize caffeinated beverage intake	- Drink plenty of water (at least 2 quarts per day), more if working strenuously or in a warm climate
Impure Water	Worldwide	Harmful organisms and pathogens living in water sources	- Gastrointestinal illness - Flu-like symptoms	- Drink clear liquids (uncontaminated) - Slowly introduce mild foods, e.g., rice, toast, crackers, bananas, or applesauce - See a doctor if there is no improvement	- Carry your own water - Treat water before use with tablets, purifiers, or by boiling for > 3 minutes
Sunburn	Worldwide	Excessive exposure to the sun	Irritated skin, pink or red in color	Apply cool water, aloe or other cooling lotion to affected area	- Wear long sleeved clothing and a hat - Apply SPF ≥30 sun-block
Heat Exhaustion	Worldwide – Hot Climate	Prolonged physical exertion in a hot environment	- Fatigue - Excessive thirst - Heavy sweating - Cool, clammy skin	Cool the victim, treat for shock, and slowly give water or electrolyte replacer	- Acclimate to heat gradually - Drink plenty of liquids - Take frequent rest breaks

Hazard	Location	Cause	Symptoms	First Aid	Prevention
Heat Stroke	Worldwide – Hot Climates	Prolonged physical exertion in a hot environment	- Exhaustion - Light-headedness - Bright red warm skin	Cool the victim at once, replenish fluids, and seek medical attention immediately	- Acclimate to heat gradually - Drink plenty of liquids - Take frequent rest breaks
Frostbite	Worldwide – Cold Climate	Exposure to cold temperatures	- Waxy, whitish numb skin - Swelling, itching, burning, and deep pain as the skin warms	Slowly warm the affected areas (do NOT rub area) and seek medical attention immediately	- Dress in layers - Cover your extremities with warm clothing, e.g., hats, facemask, gloves, socks, and shoes
Hypothermia	Worldwide – Cold Climate	Prolonged exposure to cold temperatures	- Shivering - Numbness - Slurred speech - Excessive fatigue	Remove cold wet clothes, put on dry clothes or use a blanket or skin-to-skin contact, drink warm liquids, seek medical attention immediately	- Dress in layers - Wear appropriate clothing - Avoid getting damp from perspiration
Carbon Monoxide	Worldwide	Running a vehicle or burning a fuel stove in an enclosed space	- Severe headaches - Disorientation - Agitation, lethargy, stupor, coma	Remove the victim to fresh air immediately and perform CPR if needed	- Keep areas adequately ventilated when burning fuel - Ensure that vehicle tailpipe is not covered
Extreme Weather	Worldwide	Snow squalls, blizzards, heavy rains, lightning, tornadoes, hurricanes, flash floods	Severe weather can result in physical injury and/or death	Seek shelter immediately	- Be aware of special weather concerns - Bring appropriate equipment to deal with severe weather - Be aware of hazards specific to your area
High Altitude Illness	Worldwide – High Altitudes	Decreased oxygen intake and increased breathing rate	- Headache - Nausea - Weakness	Use supplemental oxygen and decrease altitude	- Allow your body to acclimatize by gaining elevation slowly

Table 4: Physical and Environmental Hazards - North America

Hazard	Location	Cause	Symptoms	First Aid	Prevention
Hunting Season	North America (See Resources, Section 6 for more Information)	Local hunting seasons and regulations vary	- A hunting accident may result in serious injury or death	Seek medical attention for serious injuries or wounds	- Wear appropriately colored safety clothing (orange) - Avoid animal like behavior (e.g. hiding in thickets)
Poison Plants	North America	Exposure to poison ivy, poison oak, poison sumac plants, or other toxic plants	- Itchy rash - Red, swollen skin	Apply a wet compress with baking soda or vinegar, or use a topical ointment. Avoid scratching the rash.	- Avoid contact with poison plants - Use pre-exposure lotion - Wash clothes and skin with soap and water after exposure

Table 5: Physical and Environmental Hazards - International

Hazard	Location	What to do if Encountered	Prevention
Kidnapping/Faked Kidnap Reports for Money	International – See Department of Public Safety in section 6 Resources for more information	- If kidnapped, fight back and make noise to bring attention to the area. Yelling "fire" can bring more attention than general cries for "help" - Report the crime to local authorities	- Don't walk alone - Know who you are with - Keep a safe word with family and friends so that in the event of a real emergency a duress signal is known and identity can be verified over text or phone
Sexual Assault	International	Report the crime and seek immediate medical attention	- Speak with hosts and travel sponsors about local conditions, expectations and treatment of women - Take care to know your surroundings and who you are with

Hazard	Location	What to do if Encountered	Prevention
Theft	International	Report theft immediately to local authorities	- Keep wallet in front pocket - Carry shoulder bag diagonally and keep bag in front under your arm
Violence caused by political unrest or military conflict	International	Leave the area as soon as it is safe to do so.	- Be aware of current travel advisories

Table 6: Disease - General

Type	Location	Exposure Route	Symptoms	First Aid	Prevention
Campylo-bacteriosis	Worldwide	Foodborne – poultry products, unpasteurized milk or water contaminated with Campylobacter	- Diarrhea - Gastrointestinal symptoms - Fever	- Drink plenty of fluids - Seek medical attention if symptoms persist	- Always cook food thoroughly - Never drink water from an impure source - Do not drink unpasteurized milk - Wash hands with soap and water frequently
Cholera	Africa, Asia, Latin America	Foodborne – food and water contaminated with *Vibrio cholerae*	- Diarrhea - Gastrointestinal symptoms	- Drink plenty of fluids - Seek medical attention if symptoms persist	- Always cook food thoroughly - Never drink water from an impure source - Wash hands with soap and water frequently
E. coli and Shiga toxin-producing E. coli Gastroenteritis	Worldwide	Foodborne – beef, unpasteurized milk, unwashed raw vegetables, water contaminated with Escherichia coli	- Diarrhea - Gastrointestinal symptoms	- Drink plenty of fluids - Seek medical attention if symptoms persist	- Always cook food thoroughly -Wash vegetables before consuming - Never drink water from an impure source - Wash hands with soap and water frequently.

Type	Location	Exposure Route	Symptoms	First Aid	Prevention
Hepatitis A (Vaccine Available)	Worldwide – under developed nations	Foodborne –water, shellfish, unwashed raw vegetables contaminated with Hepatitis A virus	- Diarrhea - Gastrointestinal symptoms	- Drink plenty of fluids (bottled or purified water – not local water) - Seek medical attention if symptoms persist	- Obtain a vaccine - Always cook food thoroughly - Wash vegetables before consuming - Never drink water from an impure source - Wash hands with soap and water frequently
Histo-plasmosis	Worldwide (especially Miss. & Ohio River Valleys)	Inhalation of fungus Histoplasma capsulatum from soil contaminated with bat or bird droppings	- Mild flu-like - Rarely can be acute pulmonary histoplasmosis	- See a doctor if you suspect histoplasmosis - Typically clears up in 3 weeks	- Use caution when disturbing dry soils or working near bat or bird droppings - Personal protective equipment may be needed
Human Immuno-deficiency virus/ Acquired Immune Deficiency Syndrome (HIV/AIDS)	Worldwide	- Being exposed to blood or body fluids infected with HIV - Having sex or sharing needles with someone infected with HIV	- May have flu-like symptoms 14-60 days post infection - Attacks the immune system, may eventually result in opportunistic infections or cancers	- None - Blood test for diagnosis - Treatment with antiretroviral drugs for long term maintenance	- Follow Bloodborne Pathogen training when handling any unfixed human blood or tissue -Do not engaging in risky activities

Type	Location	Exposure Route	Symptoms	First Aid	Prevention
Influenza (seasonal)	Worldwide	- Inhalation of influenza virus - Contact with birds infected with influenza	- Fever (usually high) - Headache - Extreme tiredness - Dry cough - Sore throat - Runny or stuffy nose - Muscle aches - Stomach symptoms (nausea, vomiting, diarrhea) more commonly in children	- Flu antiviral drugs can treat the flu or prevent infection - Your health care professional will decide whether you should take antiviral drugs - Antiviral drugs should be started within 48 hours of getting sick - Antiviral drugs are 70% to 90% effective in preventing infection	- Annual flu vaccination - Cover your nose and mouth with a tissue or your elbow when you cough or sneeze - Wash hands with soap and water frequently - If you are not near water use an alcohol based hand cleaner - Try not to touch your eyes, nose, or mouth. -Stay away from people who are sick - If you get the flu, stay home from work or school
Leptospirosis	Worldwide	Ingestion, swimming, or other activities in water contaminated with Leptospira	- Flu-like - Occasionally more serious symptoms	- See a doctor if you suspect leptospirosis	- Use care when working in the water, especially after a flooding event - Avoid entering the water with open wounds
Norovirus “Norwalk-like viruses” (NLV) Gastroenteritis	Worldwide	Foodborne - food, water, surfaces or objects contaminated with Norovirus - Direct contact with another person who is infected	Nausea, vomiting, diarrhea, stomach cramping - Some people also have a low-grade fever, chills, headache, muscle aches, malaise	Stay hydrated	- Wash hands with soap and water frequently - Wash fruits/vegetables, and steam oysters - Clean and disinfect contaminated surfaces immediately after illness using a bleach-based cleaner - Remove and wash contaminated clothing or linen

Type	Location	Exposure Route	Symptoms	First Aid	Prevention
Plague	Worldwide	Flea-borne - from rodents infected with *Yersinia pestis* to humans -Direct contact with infected tissues or fluids from sick or dead animals	- Flu-like - Swollen and painful lymph nodes (bubonic)	See a doctor if you suspect plague	- Use care when working in areas where plague is found - Use caution when working with wild rodents
Rabies (Vaccine Available)	Worldwide	- Infection from bite of an animal (e.g., raccoons, skunks, bats, foxes, coyotes, dogs, cats) infected with Lyssavirus - Bat bites are difficult to see and may not be felt. Exposure is also possible when a bat is found in living or sleeping quarters.	- Fatal (within days of the onset of symptoms) without immediate treatment - Early symptoms: fever, headache, malaise - Later symptoms: insomnia, anxiety, confusion, paralysis, hallucinations, hyper salivation, difficulty swallowing, fear of water	Disinfect and wash the wound. See a doctor IMMEDIATELY if potentially exposed to a rabies-carrying species (e.g., bat, carnivore)	- Obtain a rabies vaccination if you will be working with bats or carnivores - Use extreme caution handling these animals - Vaccinate pets
Salmonellosis	Worldwide	Foodborne – beef, poultry, milk, eggs, unwashed raw vegetables contaminated with salmonella bacteria	- Diarrhea - Gastrointestinal symptoms	- Drink plenty of fluids - Seek medical attention if symptoms persist	- Always cook food thoroughly - Wash vegetables before consuming - Wash hands with soap and water frequently
Typhoid Fever (Vaccine Available)	Worldwide	Foodborne – food and water contaminated with Salmonella typhi	- Diarrhea - Gastrointestinal symptoms	- Drink plenty of fluids - Seek medical attention if symptoms persist	- Obtain a vaccine - Always cook food thoroughly - Never drink water from an impure source - Wash hands with soap and water frequently

Type	Location	Exposure Route	Symptoms	First Aid	Prevention
Tetanus (Vaccine Available)	Worldwide	A wound that is infected with Clostridium tetani; tetanus toxin is produced by the bacteria and attacks nerves	- Early symptoms: lockjaw, stiffness in the neck and abdomen, difficulty swallowing - Later symptoms: muscle spasms, seizures, nervous system disorders	- See a doctor for any wound contaminated with dirt, feces, soil, or saliva; for puncture wounds; and for wounds resulting from crushing, burns, and frostbite	- Obtain a vaccine for tetanus every 10 years or immediately following a suspect wound or injury - Once the disease starts it must run its course
Typhus Fever	Worldwide	Infection from bite of lice, fleas, ticks, or mites infected with Rickettsiae species	- Headache - Fever - Rash	- See a doctor if you suspect Typhus Fever -Treatable with antibiotics	- Use insect repellant - Wear long sleeve shirts -Tuck pants into boots

Table 7: Disease - North America

Type	Location	Exposure Route	Symptoms	First Aid	Prevention
Coccidiodo-mycosis "Valley Fever"	North and South America semiarid regions	*Coccidioides* species fungus is inhaled when soil is disturbed	- None in most people ~60% - Flu-like (fever, cough, rash, headache, muscle aches) - Occasionally, chronic pulmonary infection or widespread disseminated infection (skin lesions, central nervous system infection, and bone and joint infection)	- See a doctor if you suspect Valley Fever	- Wet soil before digging - If you are immuno-compromised, wear a mask when digging - Stay inside during dust storms in areas where Coccidioides fungus is present - Keep doors and windows tightly closed

Type	Location	Exposure Route	Symptoms	First Aid	Prevention
St. Louis Encephalitis	North and South America	- Mosquito-borne - infection from bite of a mosquito infected with St. Louis Encephalitis virus	- Mild - fever and headache - Severe headache, high fever, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, paralysis, and rarely death	Seek medical attention immediately if you suspect encephalitis	- Use insect repellent - Many mosquitoes are most active at dusk and dawn, consider staying indoors during these hours - Wear long sleeves and pants - Avoid areas of standing water where mosquitoes breed
Lyme Disease	United States, Europe and Asia	Infection through the bite of a tick infected with Borrelia burgdorferi (U.S.) Borrelia afzelii or Borrelia garinii (Europe)	- Spreading rash - Early symptoms: flu-like - Later symptoms: arthritis and neurologic problems	See a doctor if you suspect Lyme Disease	- Avoid tick infested areas - Wear long sleeves and pants - Use insect repellant - Check clothing and hair for ticks and remove any ticks
Rocky Mountain Spotted Fever	United States, southern Canada, Mexico, and Central America	Infection through the bite of an infected tick -Rickettsiae rickettsii	- Sudden onset of fever - Headache - Muscle pain - Spotty rash	See a doctor if you suspect Rocky Mountain Spotted Fever	- Avoid tick infested areas - Wear long pants, shirts - Use a repellant - Check clothing and hair for ticks and remove any ticks
Hantavirus Pulmonary Syndrome (HPS) – Sin Nombre Virus	North America	Inhalation of dusts or aerosols from the infected rodent's feces, urine, or saliva - Vector: Deer mouse (peromyscus maniculatus)	- (Early, 1-5 weeks) fatigue, fever, muscle aches, chills, headaches, dizziness, sometimes abdominal problems - (Late, 4-10 days after early) coughing, shortness of breath	Seek medical attention IMMEDIATELY if you suspect HPS. The likelihood of survival is greatly increased with early diagnosis and treatment	- Avoid contact with rodents, especially their feces - See section on dealing with rodent infested areas

Type	Location	Exposure Route	Symptoms	First Aid	Prevention
Arenavirus (White Water Arroyo)	North America	Inhalation of dusts or aerosols from the infected rodent's feces, urine, or saliva - Vector: Woodrats (Neotoma fuscipes) and other Neotoma species	- Fever - Headache - Muscle aches - Severe respiratory distress (occasionally)	Seek medical attention IMMEDIATELY if you suspect WWA. The likelihood of survival is greatly increased with early diagnosis and treatment	- Avoid contact with rodents, especially their feces - See section on dealing with rodent infested areas
West Nile Virus	North America	- Mosquito-borne, Infection from the bite of a mosquito infected with West Nile Virus - Handling infected birds	- None in most people ~80% - Mild - fever, headache, body aches, nausea, vomiting, and sometimes swollen glands or a rash on the chest, stomach and back - Severe, high fever, neck stiffness, stupor, muscle weakness, disorientation, coma, tremors, convulsions, vision loss, numbness, paralysis	See a doctor if you suspect that severe symptoms are due to West Nile Virus	- Use insect repellent - Many mosquitoes are most active at dusk and dawn, consider staying indoors during these hours - Wear long sleeves and pants - Avoid areas of standing water where mosquitoes breed - Don't handle dead birds with your bare hands

Table 8: Disease - International

Type	Location	Exposure Route	Symptoms	First Aid	Prevention
Dengue Fever	Africa, Southeast Asia, China, India, Middle East, South and Central America, Australia and the Pacific Islands	- Mosquito-borne Infection from the bite of a mosquito infected with 1 of 4 dengue viruses	- Flu-like - Sudden, high fever - Severe headache - Pain behind eyes - Nausea/vomiting - Rash	- See a doctor if you suspect Dengue Fever - Takes up to 1 month to recover	- Wear long sleeves and pants - Use insect repellent - Use a mosquito net

Type	Location	Exposure Route	Symptoms	First Aid	Prevention
Malaria (Preventable with Drugs)	Central and South America, Hispaniola, Africa, India, South Asia, Southeast Asia, the Middle East, and Oceania	- Mosquito-borne - Infection from the bite of an infected female Anopheles mosquito - Blood transfusion - Contaminated needles/syringes	- May take 10 days to 1 year for symptoms to appear - Flu-like, fever, sweats, chills, headache, malaise, muscle aches, nausea, vomiting, jaundice - Untreated may cause severe complications including death	- See a doctor IMMEDIATELY if you have traveled in a malaria-risk area and suspect malaria	- Use a mosquito net - Use insect repellent - Take Anti-malarial drugs (visit your health care provider 4-6 weeks before travel) - Wear long sleeves and pants
Severe Acute Respiratory Syndrome (SARS)	Occurred in 2003 in North America, South America, Europe, and Asia	- Close person-to-person contact - Inhalation of respiratory droplets produced when an infected person coughs or sneezes - Touching surface or object contaminated with infectious droplets and then touch mouth, nose, or eye(s)	- Begins with a high fever (>100.4°F [38.0°C]) - Headache - Malaise - Some have mild respiratory symptoms at the outset - 10- 20% have diarrhea - After 2 to 7 days may develop a dry cough - Most develop pneumonia	- See a doctor if you suspect SARS.	- Wash your hands with soap and water frequently or an alcohol-based hand rub - Travelers to China should avoid live food markets and contact with civets and other wildlife (no evidence that direct contact with civets has led to cases of SARS, similar viruses have been found in these animals)

Type	Location	Exposure Route	Symptoms	First Aid	Prevention
Yellow Fever (Vaccine Available)	South America and Africa	- Mosquito borne - Infection from the bite of a mosquito infected with Yellow fever virus	- Flu-like - Jaundice - Can be fatal	See a doctor if you suspect Yellow Fever	- Visit doctor at least 10 days before travel for vaccine - Wear long sleeve shirts and pants - Use insect repellant - Use a mosquito net
Hantavirus (Sin Nombre Virus) and Arenavirus (White Water Arroyo)	Central and South America and Asia	- Inhalation of dusts or aerosols from the infected rodent's feces, urine, or saliva - Vector: Rodents; especially Neotoma and Peromyscus species	- Fever - Headache - Muscle aches - Severe respiratory distress (occasionally)	Seek medical attention IMMEDIATELY if you suspect hanta or arenavirus. The likelihood of survival is greatly increased with early diagnosis and treatment	- Avoid contact with rodents, especially their feces - See section on proper rodent handling for cleaning a rodent infested area
Schistomiasis, (or bilharzias)	Brazil, Egypt, sub-Saharan Africa, southern China, the Philippines, and Southeast Asia	Transmitted by swimming in contaminated fresh water	- Can be asymptomatic - (Acute: 2-3 weeks) Fever, weight loss, weakness, cough, headaches, abdominal, joint and muscle pain, diarrhea, nausea - (Chronic) disease in lungs, liver, intestines and bladder	See a doctor if you suspect schistomiasis	- Avoid fresh-water wading or swimming in endemic regions - Heat bath water over 50C for at least 5 minutes before use

Appendix B

THE UNIVERSITY OF UTAH

Field Research Safety Plan

The purpose of this plan is to ensure that an adequate level of safety is provided for field research operations involving University of Utah personnel, and to provide an effective method for contacting and/or locating personnel in the field. The completed form should be shared with all members of the field research team and kept on file in an easily retrievable location with the department contact listed below. **A copy of the plan should be kept on site for the duration of the work.** Multiple trips to the same location can be covered by a single plan. The plan should be revised, and redistributed whenever a significant change to the location or scope of fieldwork occurs. OEHS is available to assist in completion or review of the Safety Plan: (801)581-6590

Project Information:			
Project Name:			
Project Field Dates:			
Travel Dates:			
Project Location:			
Principal Investigator:			
24 hr. PI phone:		PI Email:	
Department:			
Department Contact:			
Dept. Contact Phone:		Dept. contact email:	
24 hr. Emergency Contact (s)			
24 hr. Emergency Contact Phone #(s)			
On site contacts:			
Primary Contact:		24 hr. phone	
Email:			
Instructions for contacting the site:			
Secondary Contact:		24 hr. phone	
Email:			
Alternate Contact Method (if applicable)			

Site Map(s):
Include detailed maps of the area(s) in which field research activities will take place. Identify relevant locations (camp site, latrine facilities, field operations locations, etc) on the map(s):

Medical and Sanitation Plan:	
List any required vaccinations, medical examinations, medications, etc.	
Describe where to find first aid and emergency medical (AED, etc.) supplies on site:	
Describe procedures to follow in the event of an emergency:	
Describe the procedure to contact emergency medical services for the location (include phone numbers, radio frequencies, etc.):	
Location and contact information for the nearest medical facility (include directions and/or a map):	
Describe all procedures, facilities, etc. related to potable water, washing facilities, toilet facilities, etc.	

Any incident where there is physical injury to any person or damage to university owned property there is an obligation for prompt reporting as appropriate. Report must be made as follows:

For injury to University personnel (including volunteer staff):

- Report the injury to the project supervisor or department contact
- Complete the worker's compensation first report of injury form available from HR
- Report the incident to University OEHS

For injury to a student or damage to university property:

- Complete the Risk and Insurance Services incident report form located here: https://riskmanagement.utah.edu/intranet/insurance/incident-accident-info.php
- Report Student injuries to University OEHS

Field Personnel: Identify all personnel that will be doing work in the field on this project. Add additional lines as needed.		Category (mark all that apply)				
Name	**24 hour contact number, radio #/call sign, etc.**	Staff	Student	Volunteer	First Aid Trained	AED/CPR Trained
Emergency Contact (name, phone number)for above named individual:						
Emergency Contact (name, phone number)for above named individual:						
Emergency Contact (name, phone number)for above named individual:						
Emergency Contact (name, phone number)for above named individual:						
Emergency Contact (name, phone number)for above named individual:						

Project Description:
Please provide a description representing the scope of work to be conducted.

Project Risk Assessment (add additional lines as needed):		
Job Task	**Identified Hazards(s)**	**Control Measures:**

Training required:	**General PPE required:**	**Other general control measures:**

Travel Plan:		
Provide a detailed itinerary for all travel to, from, and within the location(s) – if this plan covers multiple trips to the same location include information for each trip:		
Provide travel and/or vehicle insurance provider information:		
If driving, list all individuals authorized to drive.		
Name of Authorized Driver	UNID	Driver training date:
List any travel restrictions, advisories, etc. that may be in effect:		

Standard Operating Procedures:
List standard operating procedures (SOPs) for all research activities that will take place during the field operation. Attach written copies of all SOPs:

Hazardous Materials:
List all hazardous materials (chemical, biological, radiological) that will be used in research activities that will take place during the field operation. Attach copies of all relevant SDS for chemicals:
Describe the procedure for disposal of any unwanted hazardous materials:

Training Record:			
Print Name:	**UNID:**	**Date:**	**Signature:**