Safety Guidelines for Fieldwork

Industrial Hygiene and Occupational Safety Department
Environmental Safety Division
University of Georgia

Adapted from the Safety Guidelines for Field Researchers published by the Office of Environment, Health & Safety at University of California, Berkeley

Safety Guidelines for Field Researchers

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I. General Field Safety Guidelines

Fieldwork is an important part of teaching, research, and clinical practice at UGa. This booklet is intended to help you prepare for health and safety problems you might encounter when fieldwork takes you off campus. For more specific information on fieldwork hazards and precautions, talk to your supervisor or contact the Environmental Safety Division at 706-542-5801.

Before You Leave

One of the most important phases of your fieldwork experience is planning and preparation before you leave. Here are some suggestions for a safe trip.

Prepare a *written safety plan* for your trip, including a risk assessment and contact information. A copy should be left with a responsible party at your group office. Include the following:

Activities: General nature of your activities.

Your itinerary: Locations; arrival and departure dates; names, addresses, and phone numbers of all fieldwork participants

Local contacts: Names of people at or near your fieldwork site who can reach you if necessary and who are familiar with your check-in and checkout arrangements. If field team members have serious medical conditions or allergies, a local medical contact should be informed of any allergies or other medical conditions of the field team members. If possible, each day field-workers should also inform someone (e.g., police, sheriff, motel employee, or local search and rescue personnel) about the daily fieldwork location and the approximate time of return. After each day's work, field-workers should notify the contact when they return. The local contact should be provided with the telephone numbers of people to call (University contact) if the workers do not return or report in within a predetermined interval of the scheduled return time.

Home contact: The written plan should also list the name and phone number of family to contact in case the researcher is injured or taken ill.

University Contact: The written plan should list a university contact person or group. Field workers should check in with their university contact regularly and should provide information on changes in schedule or points of contact.

If your trip will be in a foreign country, learn something about the language, customs, and people you may work with or whom you may need to associate.

US Embassy contact: You should contact the US embassy for guidance if you are visiting a foreign country for research activities that may involve interaction with that country's officials.

Assistance in developing a safety plan is available from the Industrial Hygiene and Occupational Safety (IH&OS) office, 706-542-8601.

Learn about potentially hazardous plants, animals, terrain, and weather conditions in the areas where you plan to work and complete a field research risk assessment (part of the Fieldwork Safety Plan, available on the ESD website (http://www.esd.uga.edu). In addition, your supervisor/sponsor, other field-workers, or

local residents and authorities, such as state and national park service personnel, may be able to provide you with helpful information.

Vaccinate - If your trip involves travelling outside the country, you should contact the United States Department of State's "Smart Traveler office," https://travelregistration.state.gov and the CDC, http://www.cdc.gov/travel to learn about the required and recommended vaccinations for your location. Some countries require proof of vaccinations prior to entry. To allow enough time, please schedule your visit six to eight weeks prior to departure. For more information, please call Employee Occupational Health and Wellness at 919-684-3136 or see the EOHW Travel Clinic FAQ online at http://www.hr.UGa.edu/about/departments/eohw/travel_faq.php.

Students who are not also employees should call Student Health at 919-681-9355 or visit their International Travel Clinic website at http://studentaffairs.UGa.edu/studenthealth/services/international-travel-clinic/steps-planning-your-travel

Take a Cardiopulmonary Resuscitation (CPR) or First Aid class. Contact the Red Cross to enroll.

Assemble safety provisions and check everything before you leave; safety provisions may include:

- First aid kit and first aid manual. These should be taken on any trip.
- Medications you regularly take
- Allergy treatments (if you have allergies)
- Sunscreen and hat
- Water purification tablets or filter devices
- Vehicle emergency kit
- Flashlight
- Flares
- Two-way radio (if you will be working in an isolated or dangerous area)
- Personal protective equipment for fieldwork activities (safety glasses/goggles, gloves, hard hat, sturdy work boots). UGa OESO can recommend protective equipment depending on your activities.

Whenever possible, fieldwork activities should be performed in teams of at least two people. The "buddy" system is the safest way to work.

Contact Corporate Risk Management at (919) 684-6226) or visit them at *http://finance.UGa.edu/insurance/depts/index.php* to obtain information about travel insurance and waivers.

Carry photo identification with you at all times in case of accident or injury.

Ask your health insurance provider how your coverage applies to medical treatment in the fieldwork locale, should that become necessary.

Medical Care and First Aid

Emergency Medical Care

The following guidelines apply to all off-campus activities that involve employees and students, including academic field trips, excursions, and field station operation.

1. A first aid kit must be maintained at all times during the activity or exercise (see information below).

2. At least one person who is trained in first aid must be present when an infirmary, clinic, hospital, or Emergency Medical Service response is more than five minutes from field activities.

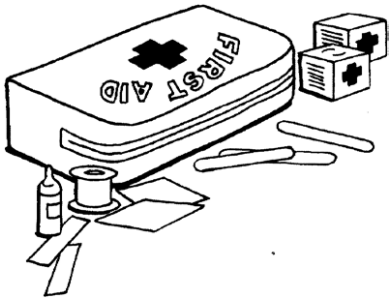
3. At permanent research field sites, written arrangements must be made in advance with local facilities for emergency medical treatment. If you are working from a permanent field research site, you should find out what the arrangements are for emergency care.

4. Each department has its own procedures for obtaining insurance coverage for emergency medical treatment. Fieldwork participants should know these procedures before they leave.

If a University employee suffers a job-related injury or illness, his or her supervisor must be notified within 24 hours and a Report of Occupational Injury or Illness must be completed. If the injury is "serious" (that is, any injury resulting in overnight hospitalization or any fatality), notify your University contact immediately. The University contact must call the Occupational and Environmental Safety Office (919-684-2794), and OESO will report the serious injury to OSHA or the local equivalent agency as required.

First Aid Kits

First aid kits are strongly recommended for all off-campus activities. Campus departments purchase and maintain first aid kits. Contact Employee Occupational Health and Wellness for advice on the contents of a first aid kit. EOHW can also give you advice if you need special equipment or medication. Kits and refills may be ordered from safety supply companies.



II. Physical and Environmental Hazards

Many general physical and environmental hazards exist in nearly every location worldwide. All field team members, regardless of the work location, should read through table 1 to learn more about some general and physical and environmental hazards. If your work is in North America, please read table 2. If your work will take you out of North America, please read table 3 about international hazards.

Table 1 Physical and Environmental Hazards Found Worldwide

Hazard	Location	Cause	Symptoms	First Aid	Prevention
Dehydration	Worldwide	Not enough water intake	Dark urine Lethargy Constipation Light-headedness	Drink plenty of fluids, take frequent rest breaks, and minimize intake of beverages containing caffeine.	Drink plenty of water (at least 2 quarts of water per day). Drink more if working strenuously or in a warm climate.
Impure Water	Worldwide	Harmful organisms and pathogens living in "natural" water sources	Gastrointestinal illness Flu-like symptoms	Drink clear liquids. Slowly introduce mild foods, such as 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 more than 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 sun protection factor (SPF) of 30.
Heat Exhaustion	Worldwide: hot climates	Prolonged physical exertion in a hot environment	Fatigue Excessive thirst Heavy sweating Cool and 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.
Heat Stroke	Worldwide: hot climates	Prolonged physical exertion in a hot environment	Exhaustion Light -headedness Bright red skin which is warm to the touch	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 climates	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 as soon as possible.	Dress in layers. Cover your extremities with warm hats, face mask, gloves, socks, and shoes.

Hazard	Location	Cause	Symptoms	First Aid	Prevention
Hypothermia	Worldwide: cold climates	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 to warm up. Drink warm liquids and seek medical attention as soon as possible.	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. Endure that vehicle tailpipe is not covered by snow.
Extreme Weather	Worldwide	Snow squalls, blizzards, lightning, tornadoes, hurricanes, monsoon rains, 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.
High Altitude Illness	Worldwide: high altitudes	Decreased oxygen and increased breathing rate	Headache Nausea Weakness	Use supplemental oxygen and decrease altitude.	Allow your body to acclimatize by gaining elevation slowly.
High Altitude Illness	Worldwide: high altitudes	Decreased oxygen and increased breathing rate	Headache Nausea Weakness	Use supplemental oxygen and decrease altitude.	Allow your body to acclimatize by gaining elevation slowly.
Hazardous terrain	Worldwide	Walking or hiking in steep or rocky areas	Physical injury or death	Perform CPR and/or seek medical attention if needed.	Wear appropriate shoes. Carry needed items in a well-balanced pack. Use rappelling equipment for climbing. Use hiking poles if needed.
Drowning	Worldwide	Inhalation of water leading to respiratory impairment	Apnea (suspension of breathing) Death	Take victim out of water. Turn head to side to allow water to drain out. Perform CPR if needed. Seek medical attention as soon as possible.	Know how to swim before performing field activities in water or on boats. Be aware of water safety recommendations for swimming in strong currents if necessary. Have life preservers and rescue equipment available.

Hazard	Location	Cause	Symptoms	First Aid	Prevention
Travel-related accidents	Worldwide	Injury associated with vehicle, boat, aircraft, or other means of travel	Physical injury and/or death	Perform CPR if needed. Seek medical attention as soon as possible.	Be familiar with safe operation of the vehicle or craft you will operate; use licensed pilots or drivers.
Assault	Worldwide	Criminal activity; robbery may be the motivation.	Physical injury	Remove victim to safe location if possible; seek medical attention if needed. (Also, report assault immediately to local authorities.)	Be aware of your surroundings. When possible, avoid being alone after dark, especially in high-crime areas. If assaulted, run away if possible, or make noise to attract help.

Table 2 Physical and Environmental Hazards Found in North America

Hazard	Location	Cause	Symptoms	First Aid	Prevention
Hunting Season	United States	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. Avoid animal like behavior (e.g., hiding in thickets).
Poison Plants	North America	Exposure to poison ivy, poison oak, or poison sumac 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. Wash clothes and skin with soap and water after exposure. If sensitive, use Tecnu or similar product to help remove rash-causing oil if exposure occurs.

Table 3 Physical and Environmental Hazards Found Outside of North America

Hazard	Location	Defensive Action	Prevention
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 (see Section V).

III. Animals and Pests

Dangerous animals and other pests are present worldwide. General safety rules can help protect you from these hazards. All field researchers, regardless of the work location, should read through table 4 for some general guidelines to avoid unwanted animals and pests. If your research is in North America, please also read table 5. If your research will take you out of North America, please also read table 6 about international animals.

A number of animals and pests may be encountered in fieldwork. Follow these general guidelines to prevent close encounters of the painful kind:

- Keep garbage in rodent-proof containers and stored away from your campsite or work area. Food crumbs and debris may attract insects and animals.
- Thoroughly shake all clothing and bedding before use.
- Do not camp or sleep near obvious animal nests or burrows.
- Carefully look for pests before placing your hands, feet, or body in areas where pests live or hide (e.g., woodpiles or crevices).
- Avoid contact with sick or dead animals.
- Wear clothes made of tightly woven materials and tuck pants into boots.
- Wear insect repellent.
- Minimize the amount of time you use lights after dark in your camp or work site because they may attract pests and animals.
- Use netting to keep pests away from food and people.
- Carry a first aid manual and kit with you on any excursion so you can treat bites or stings. If the pest is poisonous or if the bite does not appear to heal properly, seek medical attention immediately.
- Be aware of the appearance and habitat of likely pests, such as those described in the following pages.

Table 4 Animals and Pests Found Worldwide

Type	Location	Most Dangerous Species	Defensive Action	First Aid	Prevention
Sharks	Worldwide: Shores of oceans, including the U.S., Africa, Central and South America, Australia, and the Pacific Islands	Great White, Bull, Tiger, Oceanic Whitetip	Call for help; swim towards safety. Punch or kick the shark if necessary.	Seek medical attention for serious injuries or wounds.	Never swim alone. Don't wear sparkling jewelry. Don't enter the water when bleeding.
Crocodiles and Alligators	Worldwide: Tropics and subtropics of North America, Australia, Eastern China, and Africa	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.
Rodents	Worldwide	Refer to Section IV: Diseases	Wear appropriate personal protective equipment (gloves) if you must touch a rodent.	Clean wounds thoroughly if bitten or scratched.	Keep areas clean to avoid attracting rodents. Keep food stored in sealed containers.
Conenose Bugs	North and South America	May cause allergies in some people. Refer to Section IV: Diseases		Use topical ointments to sooth itching. Take victim to the hospital in case of anaphylactic shock.	Use caution when working near nests and wood rat dens. Use extra caution when working near rock shelters.
Mosquitoes	Worldwide, especially wet areas conducive to breeding	Refer to Section IV: Diseases		Use topical ointment to relieve itching.	Use insect repellent to deter

Type	Location	Most Dangerous Species	Defensive Action	First Aid	Prevention
Water Dwellers	Worldwide, especially Australia, also in other tropical and subtropical areas	Blue Ringed Octopus, Box Jellyfish, and Irukandji Jellyfish (Australia); Stonefish – worldwide	Never touch an unidentified octopus or jellyfish. Avoid stepping on stingrays.	Jellyfish/ Octopus sting: Use seawater to remove nematocysts. Pour vinegar on the wound. Seek medical attention immediately. Stonefish sting: Rinse in hot water (45° C or 113° F) and seek medical attention. Blue-ringed octopus sting: Provide CPR and/or supportive care to the patient and seek medical attention IMMEDIATELY. Stingray sting: irrigate wound to remove spine fragments; apply pressure to stop bleeding; soak wound in hot water or apply heat pack; remove sting pieces if injury is on extremities, then clean wound; seek emergency medical attention.	Avoid going in waters known to be inhabited by jellyfish and octopus. Wear sandals in the water to avoid stepping on a stonefish. Shuffle in the water or throw stones in before wading to avoid stepping on a stingray.

Table 5 Animals and Pests Found in North America

Type	Location	Most Dangerous Species	Defensive Action	First Aid	Prevention
Bears	North America	Black Bear (North America), Grizzly Bear (Alaska, Western Canada, Pacific Northwest), Polar Bear (Arctic)	Never 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 for serious injuries or wounds.	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.
Mountain Lions	North America : Western Canada, south into Wyoming, California, parts of Texas, Florida Everglades (few)	All	Do NOT run. Fight back. Protect your neck and head. Don't play dead.	Seek medical attention for serious injuries or wounds.	Do not corner it. Make yourself look larger (arms overhead). Use loud voice. Throw sticks or rocks. Carry pepper spray.
Snakes	North America	Rattlesnakes, Cottonmouths, Coral Snakes, Moccasins, and Copperheads	Do not pick up, disturb, or corner a snake. Move away from the snake.	Let the wound bleed freely for 30 seconds. Apply a cold pack. Keep area immobilized at heart level. Take 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.
Spiders	North America	Black Widow and Brown Recluse	Do not pick up or disturb a spider.	Clean wound and put a cool pack on the area. Keep area immobilized at heart level. Take victim to hospital (alert ahead if possible).	Use care around rock piles, logs, bark, outdoor privies, and old buildings. Shake out clothing and bedding before use.

Type	Location	Most Dangerous Species	Defensive Action	First Aid	Prevention
Scorpions	North America, especially Mexico, Arizona, southeastern California, and Utah	All	Avoid contact with scorpions whenever possible.	Clean wound and put a cool pack on the area. Keep area immobilized at heart level. Use painkiller or antihistamine if desired. Take victim to hospital if he or she shows no signs of improvement.	Always shake out clothing and bedding before use. Avoid lumber piles and old tree stumps.
Bees, Wasps	North America	Bees, wasps, hornets, and yellow jackets, Africanized Keller Bess (southeastern U.S.)	Avoid contact with these insects whenever possible.	Remove the stinger quickly. Place an ice pack and elevate to heart level. Use an antihistamine if needed.	Bring medication if you have an allergy (the sting may be fatal). Keep scented foods and meats covered.
Fleas and Ticks	North America	Refer to Section IV: Diseases	Avoid contact with animals or areas where fleas and ticks might be found.	Remove the flea or tick with tissue or tweezers and clean wound with antiseptic. Pay attention for signs of illness (see Section IV: Diseases) and seek medical attention if needed.	Wear clothing of tightly woven material. Wear insect repellant. Tuck pants into boots. Stay on widest part of path. Drag cloth across campsite to check for fleas or ticks.

Table 6 Animals and Pests Found Outside of North America

Type	Location	Most Dangerous Species	Defensive Action	First Aid	Prevention
Bears	Worldwide: Arctic, South America, Asia	Polar Bears (Greenland and N. Russia), Spectacled Bears (N. and W. South America), Asiatic Black Bears (S. and E. Asia)	Never 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 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.
Lions	Africa and Asia	All	Do not provoke a lion.	Seek medical attention for serious injuries or wounds.	Stay inside the vehicle if travelling near lions. Do not camp near areas frequented by lions.
Other Large Land Dwellers	Africa, Asia	Hippos, African Elephant, Rhinos, and Buffalo (Africa); Asian Elephants and Bengal Tigers (SE Asia); Siberian Tigers (N. and E. Asia)	Do not provoke these large animals.	Seek medical attention 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 lookout in open spaces.
Snakes	Worldwide	Russel's Viper and Indian Cobra (India); Tiger, Black, Brown and Sea Snakes (Australia); Egyptian Cobra, Puff Adder, and Saw Scaled Viper (Africa); Ferdelance (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. Apply a cold pack sparingly. Do NOT tourniquet. Keep area immobilized at heart level. Take 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	Defensive Action	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.	Clean wound and put a cool pack on the area. Keep area immobilized at heart level. Take victim to hospital (alert them first). Kill spider for positive ID (if possible).	Use care around rock piles, logs, bark, outdoor privies, and old buildings. Shake out clothing and bedding before use.
Scorpions	Worldwide, especially North Africa, the Middle East, South America, and India	All	Avoid contact with scorpions whenever possible.	Clean wound and put a cool pack on the area. Keep area immobile-ized at heart level. Use painkiller or antihistamine if desired. Take victim to hospital if he or she shows no signs of improvement.	Always shake out clothing and bedding before us. Avoid lumber piles and old tree stumps.

IV. Diseases

Viruses, bacteria, fungi, and parasites cause diseases in nearly every location worldwide. Some diseases, which are carried or transmitted by an animal, are known as "vector-borne" diseases. Where appropriate, the scientific name of the disease organism, or vector, is included in italics in tables 7 and 8.

This guide is not intended to cover every health risk in every location, but it provides information about some common diseases. Always check with your health care provider before travelling out of the country to learn about specific health risks for the region in which you will conduct your research.

All field researchers, regardless of the work location, should read through table 7 to learn more about some general diseases that exist worldwide. If your research is in North America, please also read table 8. If your research will take you out of North America, also read table 9.

Table 7 Diseases Found Worldwide

Type	Location	Exposure Route	Symptoms	First Aid	Prevention
Food-borne Diseases: Campylobacter	Worldwide	Poultry Products	Diarrhea Gastrointestinal symptoms	Drink plenty of fluids. Seek medical attention if symptoms persist for longer than 3 days.	Always cook food thoroughly.
Food-borne Diseases: Cholera	Africa, Asia, Latin America	Contaminated food and water	Diarrhea Gastrointestinal symptoms	Drink plenty of fluids. Seek medical attention if symptoms persist for longer than 3 days.	Always cook food thoroughly. Do not drink impure water.
Foodborne Diseases: E. Coli	Worldwide	Beef, unpasteurized milk, unwashed raw vegetables, contaminated water	Diarrhea Gastrointestinal symptoms	Drink plenty of fluids. Seek medical attention if symptoms persist for longer than 3 days.	Always cook food thoroughly. Wash vegetables before consuming. Do not drink impure water.
Foodborne Diseases: Hepatitis A (vaccine available)	Worldwide (underdeveloped countries)	Contaminated water, shellfish, unwashed raw vegetables	Diarrhea Gastrointestinal symptoms	Drink plenty of fluids. Seek medical attention if symptoms persist for longer than 3 days.	Obtain a vaccine. Consult with your doctor at least 1 month before departing. Always cook food thoroughly. Wash vegetables before eating

Type	Location	Exposure Route	Symptoms	First Aid	Prevention
Foodborne Diseases: Salmonella	Worldwide	Beef, poultry, milk, eggs, unwashed raw vegetables	Diarrhea Gastrointestinal symptoms	Drink plenty of fluids. Seek medical attention if symptoms persist for longer than 3 days.	Obtain a vaccine. Consult with your doctor at least 1 month prior to departure. Always cook food thoroughly. Wash vegetables before consuming.
Foodborne Diseases: Typhoid Fever (Vaccine Available)	Worldwide	Contaminated food and water	Diarrhea Gastrointestinal symptoms	Drink plenty of fluids. Seek medical attention if symptoms persist for longer than 3 days.	Obtain a vaccine. Always cook food thoroughly. Never drink water from an impure source.
Histoplasmosis	Worldwide (especially Mississippi and Ohio River Valleys)	Inhalation of fungus from soil contaminated with bat or bird droppings *Histoplasma capsulatum*	Mild flu-like symptoms Occasionally can turn into 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. Keep surfaces wet to reduce dust.
Leptospirosis	Worldwide	Ingestion, swimming, or other activities in water that is contaminated with the *Leptospira* bacteria	Flu-like symptoms 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.
Plague	Worldwide	Infection from flea bite (Fleas are infected by rodents.) *Yersinia pestis*	Flu-like symptoms; nonspecific symptoms; 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. Wear gloves and wash hands frequently

Type	Location	Exposure Route	Symptoms	First Aid	Prevention
Rabies (vaccine available)	Worldwide	Infection from bite of animal infected with *Lyssavirus*	Spasms Paralysis Fatal, without immediate treatment	See a doctor *IMMEDIATELY* if bitten by a rabies-carrying species (e.g. , bats, carnivores).	Obtain the vaccine series if you will be working with bats or other carnivores. Use extreme caution handling these animals.
Tetanus (vaccine available)	Worldwide	Infection occurs after a wound. *Tetanus bacillus*	Painful muscle contractions	See a doctor if you suspect tetanus.	Obtain a tetanus shot every 10 years.
Typhus Fever	Worldwide	Infection from bite of lice, fleas, ticks, or mites *Rickettsiae* species	Headache Fever Rash	See a doctor if you suspect typhus fever. Treatable with antibiotics	Wear repellents. Wear long sleeved shirts. Tuck pants into boots.

Table 8. Diseases Found in North America

Type	Location	Exposure Route	Symptoms	First Aid	Prevention
Coccidiodo-mycosis "Valley Fever"	North and South America: arid regions	Fungus is inhaled when soil is disturbed. Coccidioides	Flu-like symptoms Occasionally becomes severe lung disease	See a doctor if you suspect Valley Fever.	Use caution when in close contact with soil or dust and keep surfaces wet to reduce dust. African Americans, Filipinos, and immuno-compromised are at greater risk than others.
Encephalitis	North and South America (St. Louis Encephalitis) and the U.S. (West Nile Virus)	Infection from bite of an infected mosquito	Mild: Fever and headache Severe: Headache, high fever, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, paralysis, and, very occasionally, death	Seek medical attention immediately if you suspect encephalitis.	Use repellents. Wear long pants and long sleeved shirts. Avoid being bit by mosquitoes. Avoid areas of standing water where mosquitoes breed.
Lyme Disease	United States, Europe, and Asia	Infection through the bite of an infected tick *Borrelia burgdorferi*	Spreading rash Early: Flu-like symptoms Later: Arthritis and neurologic problems	See a doctor if you suspect Lyme Disease.	Avoid tick-infested areas. Wear long pants and long sleeved shirts. Use a repellent. Check clothing and hair for ticks and remove any ticks.

Type	Location	Exposure Route	Symptoms	First Aid	Prevention
Rocky Mountain Spotted Fever	United States, southern Canada, Mexico, and Central America	Infection through the bite of an infected tick *Rickettsia 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 and long sleeved shirts. Use a repellent. 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 to 5 weeks): Fatigue, fever, muscle aches, and sometimes headaches, dizziness, chills, and abdominal problems Late (4 to 10 days after early symptoms): 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 below for details on how to clean and dispose of a rodent infected area.
Arenavirus (White Water Arroyo—WWA)	North America	Inhalation of dusts or aerosols from infected rodent's feces, urine, or saliva; Carried by 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 next page for details on how to clean and dispose of a rodent-infected area.

Table 9. Diseases found primarily Outside of North America

Type	Location	Exposure Route	Symptoms	First Aid	Prevention
Dengue Fever	Africa, Southeast Asia and China, India, the Middle East, South and Central America, Australia and the Pacific Islands	Infection from the bite of an infected mosquito	Flu-like symptoms Rash Takes up to 1 month to recover.	See a doctor if you suspect Dengue Fever.	Wear long sleeved shirts and long pants. Use repellents. Use a mosquito net.
Malaria (Preventable with Drugs)	Central and South America, Hispaniola, Africa, India, Southeast Asia, the Middle East, and Oceania	Infection from the bite of an infected mosquito	May take 10 to 30 days for symptoms to appear. Flu-like symptoms Anemia Jaundice Can be fatal.	See a doctor if you suspect Malaria	Visit doctor 4 to 6 weeks before travel for anti-malarial drugs. Wear long pants and long sleeved shirts. Use repellents. Use a mosquito net.
Yellow Fever (Vaccine Available)	South America and Africa	Infection from the bite of an infected mosquito	Flu-like symptoms Jaundice Can be fatal.	See a doctor if you suspect Yellow Fever.	Visit doctor at least 10 days before travel for vaccine. Wear long pants and long sleeved shirts. Use repellents Use a mosquito net.
Hantavirus and Arenavirus	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. Early treatment greatly increases the odds of survival.	Avoid contact with rodents, especially with their feces. See above for details on how to clean and dispose of a rodent infected area.

Type	Location	Exposure Route	Symptoms	First Aid	Prevention
Schistomiasis	Brazil, Egypt, sub-Saharan Africa, southern China, the Philippines, and Southeast Asia	Transmitted by swimming in contaminated fresh water	Can be asymptomatic. Acute: (2 to 3 weeks) Fever, lack of appetite, weight loss, abdominal pain, weakness, headaches, joint and muscle pain, diarrhea, nausea, and cough Chronic: Disease in the lungs, liver, intestines, or bladder	See a doctor if you suspect schistomiasis.	Avoid freshwater wading or swimming in endemic regions. Heat bath water over 50°C for at least 5 minutes before use.

Other Diseases (Vector-Borne)

Many other vector-borne diseases may pose a problem when travelling out of the country. Always check with a physician to learn the specific threats in your location of study. Some other vector-borne diseases include:

A. African Sleeping Sickness: carried by the tsetse fly in Africa
B. Chagas Disease: transmitted by the Conenose bug in South America
C. Encephalitis: carried by mosquitoes in Asia and eastern Russia
D. Leishmaniasis: transmitted by sand flies in the tropics and subtropics
E. Filariasis: carried by mosquitoes in the tropics
F. Onchocerciasis causes "river blindness" and is carried by black flies in Africa, Arabia, and Central and South America.

Other Diseases (General)

There are other diseases to be aware of when travelling outside the United States. While risk of infection is generally low, it is important to be aware of them and take appropriate precautions to guard against diseases such as tuberculosis, HIV/AIDS, SARS, and viral hemorrhagic fevers. Always check with your health care provider to learn more about specific diseases that exist in the region where you will be conducting your research.

Proper Rodent Handling

Steps can be taken to reduce the risk of rodent-borne diseases. Most important: Make the area unattractive to rodents. Cover or repair holes into a building to prevent unwanted rodents. If camping, keep the area clean of trash and store food carefully to prevent attracting rodents. Don't camp near rodent burrows. Please refer to "Animals and Pests: General" for further tips on how to prevent rodent infestations.

If rodent feces or dead rodents are discovered, some precautions will help reduce the risk of exposure to rodent-borne diseases when cleaning the area:

Dead Rodent: Using gloves, spray the dead rodent with a solution of 1.5 cups bleach to 1 gallon of water.

Rodent Feces: Don't sweep or vacuum rodent droppings. Spray the droppings first with a bleach solution (1.5 cups bleach to 1 gallon of water). Then wipe up the droppings. If possible, wet mop the area with the bleach solution. 25.

V. Resources

Many available resources may provide more in-depth information regarding your research environment. Please use the references in this section for further information on topics discussed in this booklet.

On Campus

Environmental Safety Office Division (ESD) is available for hazard information and hazard evaluations. They can be reached at 706-542058901 or online at _____.

The Industrial Hygiene and Occupational Safety office is available for information on workplace safety and personal protective equipment use.

Student Health is available for International travel consultations and vaccinations for students. They can be reached at 706-542-5575 or online at http://www.uhs.uga.edu/ or by email at: lrachun@uhs.uga.edu

The **Workers Compensation** Office is available for questions about workers' compensation coverage and injury reports. They can be reached at 706-542-2222, or fax 706-542-7321, or e-mail *benefits@uga.edu*. or online at *http://www.hr.uga.edu/workplace-injuries-workers-comp*.

Off Campus

First Aid/CPR Training: First Aid and CPR training are available from a number of organizations, including the Central North Carolina Chapter of the Red Cross, located in Durham. They can be reached at 919-489-6541 or online at www.cncredcross.org.

General: The Centers for Disease Control and Prevention (CDC) offers a web site that describes many topics related to travel, both domestic and international: *http://www.cdc.gov/travel/*.

Medical Information about a variety of illnesses, including dehydration, carbon monoxide poisoning, sunburn, excessive heat, hypothermia, and high altitude sicknesses, can be found on-line at *http://www.webmd.com*.

Diseases: The CDC offers more detailed information about many diseases on their web site at *http://www.cdc.gov/travel/diseases.htm*.

Weather: More information on extreme weather and how to protect yourself can be found from the National Weather Service at *http://weather.gov/safety.html* and from the National Oceanographic and Atmospheric Administration (NOAA) at http://www.noaa.gov

Impure Water: For more information about water-borne diseases, the CDC provides information on-line at *http://www.cdc.gov/healthywater/disease/*.

Hantavirus: The CDC has detailed information about hantavirus available at h*ttp://www.cdc.gov/ncidod/diseases/hanta/hps/noframes/generalinfoindex.htm*.

Hunting Season: To get more information concerning hunting seasons and regulations, contact the U.S. Forest Service on-line at *http://www.fs.fed.us/*.

Lyme Disease: The American Lyme Disease Foundation provides information about the disease at *http://www.aldf.com/*.

Poisonous Plants: More information about poison plants, including photos, can be found at *http://poisonivy.aesir.com/*.

Giardia: Information on Giardia can be found at the CDC web site as well: http://www.cdc.gov/parasites/giardia/