

GEORGIA INSTITUTE OF TECHNOLOGY

# FIELD RESEARCH HAZARDS

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Reference Guide

**Environmental Health and Safety**

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## Physical and Environmental Hazards

There are diseases caused by viruses, bacteria, fungi, and parasites in nearly every location worldwide. This guide is not intended to cover every health risk in every location, but it provides information about some more common diseases. *Always check with your health care provider, Stamps Health Services or another travel health clinic before traveling 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 this section to learn more about some general diseases that exist worldwide.

### A. General







Type	Location	Cause	Symptoms	Prevention
Vehicle Accident	Worldwide	Distractive Driving, Fatigue, Roadway Issues, Impaired Driving	Injuries vary	Wear Seatbelt Follow the posted speed limit Obey the traffic laws Only allow nine (9) passengers in a van
Boating Accident	Worldwide	Improper Training Severe Weather Dangerous conditions	Injuries vary	Proper training and certification
Slips/Trips and Falls	Worldwide	Improper footing Obstruction Improper footwear Unsafe walking surface Improper use of ladder	Contusions Fractures Not paying attention to surroundings	Wear proper footwear (PPE) Training Awareness
Dehydration	Worldwide	Lack of fluids	Increased thirst Flushed face, Weakness	Drink Plenty of fluids
Sunburn	Worldwide	Excessive exposure to the sun	Irritated skin	Use sun block. Wear protective clothing
Heat Exhaustion	Hot Climate	Prolong physical exertion in hot climate	Excessive thirst Heavy Sweating Fatigue	Drink plenty of fluids Rest in a cool environment

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Heat Stroke	Hot Climates	Prolong physical exertion in hot climate	Exhaustion Light headedness Sweating may stop	Sponge down with cool water Drink plenty of fluids Rest in a cool environment Medical Emergency! Seek immediate treatment
<b>Type</b>	<b>Location</b>	<b>Cause</b>	<b>Symptoms</b>	<b>Prevention</b>
Frostbite	Cold Climate	Exposure to cold temperatures	Swelling, itching, burning, and deep pain in the skin	Cover extremities Dress in layers Avoid prolonged exposure to cold temperature
Hypothermia	Cold Climate	Prolonged exposure to cold temperature	Shivering Disoriented Fatigue	Dress in layers Avoid prolonged exposure to cold temperature Avoid being wet for long periods of time.
High Altitude Illness	Worldwide	Decreased oxygen intake and increased breathing rate	Fatigue Weakness Headache Nausea	Allow body to acclimate slowly to high altitude Wear proper gear

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**B. Insects and Animals**

Type	Location	Most Dangerous Species	What to do if encountered	Prevention
 Mosquitoes	Worldwide – especially wet areas		Brush Away Swat to kill Remove insects from the area if possible	Use insect repellent Don't leave standing pools of water Use bed nets Wear proper clothing
 Rodents	Worldwide		Don't touch a rodent, dead or alive	Keep areas clean to avoid attracting rodents Store food in sealed containers
 Flies	Worldwide		Remove insects from the area if possible Avoid areas large quantities	
 Scorpions	Worldwide	All	If you cannot leave/avoid the area, remove the scorpion from the area without using hands directly	Shake out clothing and bedding before use Avoid lumber piles and old tree stumps Wear gloves when working outside
 Sharks	Worldwide	Great White, Bull, Tiger, Oceanic Whitetip	Call for help, swim towards safety, punch or kick the shark if necessary	Never swim alone Don't wear sparkling jewelry Don't enter the water when bleeding
 Crocodiles & Alligators	Worldwide	American Alligator Estuarine Crocodile Nile Crocodile	Do not provoke an alligator or crocodile	Avoid waters known to be home to crocodiles or alligators Keep at least 30 feet away



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Type	Location	Most Dangerous Species	What to do if encountered	Prevention
Sting-rays 	Worldwide	All	Do not provoke or feed Shuffle feet Move to another area if possible	Shuffle feet while wading Wear proper footwear
Fish 	Worldwide	Barracuda, piranha, moray eel, stonefish, scorpionfish	Do not provoke or feed Work somewhere else if possible	Be aware of which fish you might encounter in their habitats Use fish handler gloves
Oysters, Shells, Corals 	Worldwide	Bacteria (Vibrio, staph) can cause life-threatening infection. Some corals can sting.	Avoid the area Seek medical treatment immediately	Cleansing and treatment for any wounds Wear proper clothing Avoid touching
Bears 	Worldwide	Polar Bears, Spectacled Bears, Asiatic Black Bears	Move back slowly Use bear spray If attacked, lay quietly in the fetal position and protect head Do not be a prey	Keep your camp area free of garbage and food waste Never feed or approach a bear
Conenose “Kissing” Bugs 	North and South America	May cause allergies in some people. In Latin America they can carry a protozoan, which causes Chagas’ disease	Remove the bug from the premises	Use caution when working near nests and wood rat dens Use extra caution when working near rock shelters
Spiders 	Worldwide	Funnel Web and Redback Spiders, Brazilian Wandering Spider, Brown Recluse, Black Widow, and Tarantula	If you cannot leave/avoid the area, remove the spider from the area without using hands directly	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

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Type	Location	Most Dangerous Species	What to do if encountered	Prevention
Snakes 	Worldwide	Russel's Viper, Indian Cobra, Tiger, Black, Brown, Sea Snake, Egyptian Cobra, Puff Adder, Saw Scaled Viper, Rattlesnake, Cottonmouth, Coral, Moccasin, Copperhead	Do not pick up, disturb, or corner a snake Move away from the snake	Walk in open areas and wear boots Use a stick to disturb the brush in front of you
Water Dwellers 	Worldwide (especially Australia)	Blue Ringed Octopus, Box Jellyfish, and Irukandji Jellyfish (Australia); Stonefish (worldwide)	Never touch an unidentified octopus or jellyfish	Avoid going in waters known to be inhabited by jellyfish and octopus Wear sandals in the water
Mountain Lions 	North, Central, and South America	All	Do not run, back away slowly, do not corner it Make yourself look larger (arms overhead), do not bend down Use a loud voice Throw sticks or rocks Fight back Protect your neck and head	Watch children or pets 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
Lion 	Africa and Asia	All	Do not startle Do not run Do not look it in the eye Make yourself look larger	Do not camp in areas frequented by lions Do not sleep outside Do not provoke

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Type	Location	Most Dangerous Species	What to do if encountered	Prevention
<p>Bees, Wasps, etc.</p> 	<p>North America</p>	<p>Bees, wasps, hornets, and yellow jackets, Africanized Killer Bees (Southeast U.S.)</p>	<p>Do not swat or kill – this may elicit an attack response from other bees/wasps            Leave the area immediately and quickly            If being chased move into a closed area if possible</p>	<p>Bring medication            Keep scented foods, drinks and meats covered            Wear shoes outside            Avoid wearing bright colors, flower prints and perfume            Move slowly or stand still (don't swat)</p>
<p>Fleas &amp; Ticks</p> 	<p>North America</p>	<p>Refer to Section IV: Diseases</p>	<p>Brush away if not attached            If attached remove quickly            Remove from premises</p>	<p>Wear long clothing with tightly woven material            Wear insect repellent            Tuck pants into boots            Avoid shrubbery</p>



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**C. DISEASES/HUMAN HEALTH**

<b>Type</b>	<b>Location</b>	<b>Exposure Route</b>	<b>Symptoms</b>	<b>Prevention</b>
Campylo-bacteriosis	Worldwide	Poultry products, unpasteurized milk or water	Diarrhea Gastrointestinal symptoms Fever	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	Food and water contaminated with <i>Vibrio cholerae</i>	Diarrhea Gastrointestinal symptoms	Cook food thoroughly Never drink water from an impure source Wash hands with soap and water frequently
<i>E. coli</i>	Worldwide	Beef, unpasteurized milk, unwashed raw vegetables, water contaminated with <i>E. coli</i>	Diarrhea Gastrointestinal symptoms	Cook food thoroughly Wash vegetables before consuming Never drink water from an impure source Wash hands with soap and water frequently
Hepatitis A (Vaccine Available)	Worldwide (under-developed countries)	Foodborne – water, shellfish, unwashed raw vegetables contaminated with Hepatitis A virus	Diarrhea Gastrointestinal symptoms	Obtain a vaccine Cook food thoroughly Wash vegetables before consuming Never drink water from an impure source Wash hands with soap and water frequently
Histoplasmosis	Worldwide	Inhalation of fungus <i>Histoplasma capsulatum</i> from soil contaminated with bat/bird droppings	Mild flu-like Rarely can be acute pulmonary histoplasmosis	Use caution when disturbing dry soils or working near bat or bird droppings Personal protective equipment may be needed
<b>Type</b>	<b>Location</b>	<b>Exposure Route</b>	<b>Symptoms</b>	<b>Prevention</b>
HIV/AIDS	Worldwide	Exposure to blood or body fluids infected with HIV	Flu-like symptoms 14-60 days post infection Opportunistic infections/cancers	Follow Bloodborne Pathogen training when handling any human blood or tissue Do not engage in risky activities

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Influenza (seasonal)	Worldwide	Inhalation of influenza virus Contact with animals infected with influenza	Fever, headache Extreme tiredness Dry cough	Annual flu vaccination Cover nose and mouth when you cough/sneeze Wash hands with soap and water frequently Use an alcohol based hand cleaner
Leptospirosis	Worldwide	Ingestion, swimming, or other activities in water contaminated with <i>Leptospira</i>	Flu-like Occasionally more serious symptoms	Use care when working in the water, especially after a flooding event Avoid entering the water with open wounds
Norovirus	Worldwide	Food, water, surfaces or objects contaminated with Norovirus Direct contact with another person who is infected	Nausea, vomiting, diarrhea, stomach cramping, low-grade fever, chills, headache, muscle aches, malaise	Wash hands with soap and water frequently Wash fruits/vegetables, and steam oysters Clean and disinfect contaminated surfaces using a bleach-based cleaner Wash contaminated clothing or linens
Plague	Worldwide	Rodents infected with <i>Yersinia pestis</i> to humans Contact with infected tissues/ fluids from sick or dead animals	Flu-like Swollen and painful lymph nodes (bubonic)	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 infected with the rabies virus	Can be fatal Fever, headache insomnia, anxiety, confusion, paralysis	Obtain a vaccine if you will be working with high rabies risk species Use extreme caution handling these animals Don't handle or feed stray animals/wild mammals
<b>Type</b>	<b>Location</b>	<b>Exposure Route</b>	<b>Symptoms</b>	<b>Prevention</b>
Salmonellosis	Worldwide	Beef, poultry, milk, eggs, raw vegetables contaminated with salmonella	Diarrhea Gastrointestinal symptoms	Cook food thoroughly Wash vegetables before consuming Wash hands with soap and water frequently
Typhoid Fever	Worldwide	Food and water	Diarrhea	Obtain a vaccine

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(Vaccine Available)		contaminated with <i>Salmonella typhi</i>	Gastrointestinal symptoms	Cook food thoroughly Never drink water from an impure source Wash hands with soap and water frequently
Tetanus (Vaccine Available)	Worldwide	A wound that is infected with <i>Clostridium tetani</i> ; nerves	Lockjaw, stiffness in neck /abdomen, hard to swallow Muscle spasms, seizures	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 <i>Rickettsiae</i>	Headache, Fever Rash	Use insect repellent Wear long sleeve shirts Tuck pants into boots
Lyme Disease	U.S., Europe, and Asia	Infection through the bite of an infected tick	Bullseye rash Flu-like symptoms	Wear long sleeves and pants Use insect repellent Check clothing and hair for ticks and remove
Rocky Mountain Spotted Fever	North and Central America	Infection through the bite of an infected tick	Fever, headache, muscle pain, rash	Wear long pants, shirts Use a repellent Check clothing and hair for ticks and remove
Hantavirus Pulmonary Syndrome (HPS)	North America	Inhalation of dusts or aerosols from the infected rodent's feces, urine, or saliva	Early: fatigue, fever, muscle aches, chills, headaches, dizziness, abdominal issues Late: coughing, shortness of breath	Avoid contact with rodents, especially their feces

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Type	Location	Exposure Route	Symptoms	Prevention
West Nile Virus	North America	Mosquito-borne Handling infected birds	Mild: fever, headache, body aches, nausea, vomiting, swollen glands or a rash on the chest, stomach and back Severe: high fever, neck stiffness, muscle weakness, disorientation, coma, tremors, vision loss, numb	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 Don't handle dead birds with your bare hands

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**Other Diseases (Vector-borne)** – There are many other vector-borne diseases that may pose a problem when traveling out of the country. Always check with a healthcare professional to learn the specific threats to your location of study. Some other vector-borne diseases include:

Type	Location	Exposure Route	Symptoms	Prevention
Africa Sleeping Sickness	Sub-Saharan Africa	Caused by protozoa ( <i>Trypanosoma brucei</i> ) Transmitted by the tsetse fly	First Stage: fever, headache, joint pain, itching, swelling of lymph nodes Second Stage: confusion, disruption of sleep cycle	Use insect repellent Wear long sleeves and pants
Chagas Disease	South America Central America Mexico	Caused by the protozoa <i>Trypanosoma cruzi</i> Transmitted by the triatomine bugs (a.k.a. conenose or “kissing” bug)	Acute Phase: swelling at site of infection, fever, fatigue, rash, body aches, swollen glands Chronic Phase: irregular heartbeat, inflamed, enlarged heart, congestive heart failure, difficulty swallowing	Use insect repellent Sleep with a mosquito net Wear long sleeves and pants
Encephalitis	Asia Eastern Russia	Transmitted by mosquitoes	Mild: headache, fever, muscle and joint pain, fatigue Severe: altered consciousness, confusion, seizures, hallucinations, double vision	Use insect repellent Wear long sleeves and pants
Leishmaniasis	Tropics and subtropics	Caused by the protozoa <i>Leishmania</i> Transmitted by sand flies	Skin sores, fever, anemia, damage to liver and spleen	Use a repellent Wear long sleeves and pants

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Type	Location	Exposure Route	Symptoms	Prevention
Filariasis	Tropics	Caused by nematodes (a.k.a. roundworms) Transmitted by mosquitoes and black flies	Elephantiasis, skin rashes	Use a repellent Wear long sleeves and pants
Onchocerciasis	Africa Arabia Central and South America	Caused by the nematode <i>Onchocerca volvulus</i> Transmitted by black flies	Scattered papules on the skin, skin atrophy, pigmentation loss of the skin	Use a repellent Wear long sleeves and pants

**Other Diseases (General)** – There are other diseases to be aware of when traveling outside of the United States. While risk of infection is generally low, it is important to be aware of and take appropriate precautions to guard against diseases such as Tuberculosis, Viral Hemorrhagic Fevers, etc. Always check with your health care provider to learn more about specific diseases that exist in the region you will be conducting your research.

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## **D. Resources**

### **I. On Campus**

Environmental Health & Safety: EHS is available for various hazard information and hazard evaluations.

(404) 894-4635

<http://www.ehs.gatech.edu>

Stamps Health Services:

(404) 894-1420

<http://www.health.gatech.edu>

CPR/AED/First Aid: Adult CPR/AED/First Aid training classes are available from Georgia Tech EHS. Check the schedule of upcoming classes at:

<http://www.training.gatech.edu>

Institutional Animal Care and Use Committee (IUCAC): All research and teaching activities involving vertebrate animal subjects must be reviewed by the Georgia Tech Institutional Animal Care and Use Committee (IACUC) and be approved prior to use of animals. This policy applies to any vertebrate animal work to be conducted by faculty, staff or students, regardless of whether the activity is funded and whether it is conducted on or off campus. Information is available at:

<http://www.compliance.gatech.edu/about-iacuc/>

Institutional Biosafety Committee (IBC): The Institutional Biosafety Committee is charged with reviewing all registrations for research, teaching, and training that involve the use of recombinant DNA (rDNA) at Georgia Tech and for ensuring that the proposed activities comply with the federal regulations and institute policies governing these activities. Information and forms are available at:

<http://www.compliance.gatech.edu/about-ibc>

Georgia Tech Travel:

(404) 894-0348

<http://www.procurement.gatech.edu/travel.php>

Office of International Education – Study Abroad: For study abroad information.

(404) 894-7475

<http://www.oie.gatech.edu/sa/>

Workers Compensation: Human Resources is available for questions about workers' compensation coverage and injury reports.

(404) 894-4847

<http://www.ohr.gatech.edu/workers%20comp>

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**II. Off Campus**

General: The Centers for Disease Control and Prevention (CDC) offers a website that describes many topics related to travel, both domestic and international in addition to health and safety tips:  
<http://www.cdc.gov/travel>

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

Diseases: The CDC offers more detailed information about many diseases related to travel on their website:  
<http://www.cdc.gov/travel/page/diseases.htm>

Georgia Department of Public Health offers information about infectious diseases:  
(404) 657-2588  
<http://health.state.ga.us/epi/outbreak/>

Fulton County Department of Health and Wellness offers information on infectious diseases and immunizations.  
(404) 612-1211  
<http://www.fultoncountyga.gov/dhw-home>

As a reminder, it is important to check with Georgia Tech Travel and your healthcare provider to determine the needed health insurance to cover travel. In addition, obtain repatriation insurance for emergency evacuation and transportation coverage.

Weather: More information on extreme weather and how to protect yourself can be found from the National Weather Service.  
<http://www.nws.noaa.gov/safety.php>

Impure Water: The CDC provides information about waterborne diseases.  
<http://www.cdc.gov/healthywater/>

Research Vessel Safety: Addresses field operations aboard research vessels or larger watercraft.  
[http://www.unols.org/publications/manuals/saf\\_stand/contents.htm](http://www.unols.org/publications/manuals/saf_stand/contents.htm)

Diving Safety:  
University System of Georgia Scientific Diving Program  
<http://diving.uga.edu/>

Georgia Tech Scientific Diving Program  
<http://www.biology.gatech.edu/research/ecology-evolution/Dive/Diving.htm>



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**III. North America**

Hunting Season: To get more information concerning hunting seasons and regulations, contact the US Forest Service.  
(800) 832-1355  
<http://www.fs.fed.us>

General Outdoor Safety: For more information on outdoor and recreational safety.  
(800) 832-1355  
<http://www.fs.fed.us/safety/outdoor>

Poisonous Plants:  
More information about poisonous plants, including photos.  
<http://poisonivy.aesir.com>

Hantavirus: The CDC has detailed information about hantavirus.  
<http://www.cdc.gov/hantavirus/>

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

**IV. International**

Travel Health & Outbreaks: Updated information about disease outbreaks and international travel health can be found from the World Health Organization (WHO)  
<http://www.who.int/ith/en/>

Advisories: Travel advisories are announced through the U.S. Department of the State. Current travel warnings, public announcements, and consular information sheets can be obtained online at:  
<http://travel.state.gov>