

Field Safety Guide

FIELD SAFETY

Fieldwork is defined as research and educational activities taking place outside of the traditional classroom or lab setting. Conducting field research and study are exciting and important components of the CC Geology Department's teaching and research programs. Still, precautions must be taken to ensure a safe and productive experience. Special risks related to travel, being outside, and interactions with strangers are inherent to fieldwork. Recognizing the inherent hazards associated with fieldwork can help prevent injuries and illnesses associated with the tasks and result in successful collection and study.

This document is meant to be a general guide to assist faculty, paraprofessionals, staff, students, and volunteers in the planning of fieldwork. It is not intended to be all-inclusive, and individuals are encouraged to further investigate the specific hazards associated with their research.

CONDUCT OF STUDENTS AND WORKERS

Dangerous play or other risky behaviors not related to research (e.g., firearm use, rock climbing, unnecessary placing of self into harmful situations), will not be tolerated. The use of alcohol and non-medicinal drugs during College business is prohibited.

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BEFORE YOU GO:

Safety must be considered as an integral component of any course or research project. The faculty and paraprofessionals presiding over a course or project are ultimately responsible for general prudence and ensuring proper safety practices under these guidelines. Before taking students or visitors into the field, or allowing them into the field without direct supervision, consider hazards that will be encountered including terrain, hazards, weather, crime, disease, or trauma, and follow the protocols in this document along with any other specific procedures identified in site-specific or process-specific plans.

Trip Planning

1. Team Assessment
 - a. Consider the students' and your relative fitness levels before heading out on an arduous task.
 - b. In regions of high altitude, consider participant acclimation and the type of altitude sickness (acute mountain sickness (AMS), high altitude cerebral edema (HACE), and high altitude pulmonary edema (HAPE)).
 - c. In regions of elevated temperature, consider heat stroke, heat stress, and dehydration.
 - d. In cooler climes or areas of water saturation, consider hypothermia, immersion foot, and the stages of frostnip to frostbite.
2. Create a Field Plan:
 - a. Team leader designation.
 - b. Itinerary with dates, contact information, and locations for all field excursions.
 - c. Emergency plan.
 - d. Local emergency contact information.
 - e. Check-in schedule.
 - f. Description of the fieldwork and anticipated associated hazards.
3. File the Field Plan with your advisor and the Geology Department.
 - a. Confirm who is responsible for monitoring check-ins and the protocol if communications fail.
4. Permits and Reservations– Obtained as needed.
 - a. Park entrances and fee waivers
 - b. Overnight/long-term vehicle parking
 - c. Scientific sample collection
 - d. Transportation approvals
 - e. Campsite reservations, including check-in/out, tent limits, gate closures, etc.
 - f. CC Baca Grande reservation
 - g. CC Gilmore Stabler Cabin reservation
5. Medical Forms and Waivers
 - a. Emergency contact information must be collected from each participant beforehand
 - b. Students should be queried regarding special conditions (visible or hidden disabilities), special medical conditions (e.g., diabetes, allergies, epilepsy, etc.), or special accommodations.
6. Training
 - a. The Geology Department Paraprofessionals and Technical Director all have active CPR and First Aid certification and Wilderness First Responder (WFR) certification. Someone on the team should have at least CPR and First Aid certification.
 - b. Individual fieldwork may require additional certifications, e.g., diving, boating safety, etc.
 - c. Students are ideally trained on necessary field equipment before leaving campus.

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7. Insurance
 - a. The Colorado College provides basic insurance coverage for College-owned buildings and building contents for specific causes of loss. However, the College does not automatically extend coverage for scientific equipment, electronics, or other property brought into the field, including vehicles.
 - b. Students must make sure that they have adequate coverage, especially if travelling out of the country and/or operating a vehicle, whether owned by CC or not and whether in the U.S. or abroad.
 - c. Each student, staff, faculty, or volunteer must have proof of medical insurance on hand. Insurance information should be disclosed on the Medical Release in the event of emergency care.
 - d. Individual fieldwork activities may require additional insurance, e.g., Diving accident insurance through Divers Alert Network (DAN).
8. Obtain or verify vaccinations, as required
 - a. Tetanus
 - b. Centers for Disease Control and Prevention (CDC) website (<https://www.cdc.gov/>) provides detailed information regarding travel vaccinations
 - c. The El Paso County Public Health website (<https://www.elpasocountyhealth.org/appointments-adults-children-families/>) have immunization clinic information.
9. Assemble Safety Provisions –
 - a. A list of safety equipment should be prepared and checked over before leaving. And equipment and safety checklist should be specifically designed and routinely modified for each trip and its specific locations and field work strategy.
 - b. Depending on the fieldwork, examples of equipment may include:
 - i. Steel-toed boots
 - ii. Hard hats
 - iii. Safety glasses
 - iv. Gloves
 - v. Reflective vests
 - vi. Sunblock
 - vii. Sunglasses
 - viii. Insect repellent
 - ix. Flashlights/lanterns and batteries
 - x. First aid kit
 - xi. Water, water purification
 - xii. Communication equipment: cell phone, radio, satellite phone
 1. If necessary, a runner can be used between the central communicator and field unit(s).
 - xiii. Vehicle emergency kit (See the **Vehicle Checklist** for details)
 - xiv. Specialized equipment: GPS, compass, charts, climbing gear, etc.

Field Strategy

1. Team logistics
 - a. Use teamwork or at a minimum the buddy system for field classes or special assignments, especially for arduous or dangerous fieldwork.
 - b. Know your team's and your limits, and do not exceed them. One injured, ill, or seriously exhausted team member can reduce the functioning of the entire team.

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- c. You should never be alone in the field. If you get separated, retrace your steps, back to the starting point if necessary, until you find your group. If you cannot retrace your steps and become lost, stay in place so your team can find you by searching the area via a grid search and process of elimination.
 - d. Students should tell their supervisor where they are working and stick to the prescribed routes or locations.
2. Area Reconnaissance:
- a. Research the area's customs, language, food, etc.
 - b. Seek out anomalies such as seeps, hot springs, topographic irregularities, etc.
 - i. Why do these occur where they do?
 - ii. What do they infer about the geology of your area?
 - iii. Do they pose questions to be answered?
 - c. Consider analogs:
 - i. Are there analogous areas/formations?
 - ii. Will modern or ancient analogs be more useful?
 - iii. Is this considered a "classic locality?"
 - iv. Is there existing data for an analogous area?
3. Permits
- a. Get the necessary permissions: parks, government, Colorado College
4. Identify potential hazards:
- a. Wildlife, hunters, military maneuvers, minefields, ordinance depots, etc.
 - b. First Aid kits, +/- snake bite kit, nearest medical help/facility.
 - c. Team member medical knowledge: allergies, fitness limitations, medications, etc.
 - d. Discuss risks and hazards, and incorporate preventative measures into the field plan.
5. Stay in touch with the Geology Department:
- a. Have a communication plan for periodic contact and status reports, emergency communications, etc.
6. Sampling Strategy
- a. What samples need to be collected and for what purpose?
 - b. Who will collect the samples, and how should the samples be selected?
 - c. Will weathering of samples be a factor?
 - d. Will multiple sets of samples be taken for analysis? If so, how many?
 - e. In what containers should samples be transported (e.g., bags, jars, etc.)? Will any special precautions be necessary to prevent breakage or contamination?
 - f. What information needs to be collected for each sample (e.g., GPS coordinates, outcrop images, field relationships, strike/dip, etc.)?

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EMERGENCY PREPAREDNESS

1. Accidents
 - a. Most accidents are related to a slip, trip, or fall. Wear proper footwear and choose paths of travel carefully, paying particular attention to streams, loose rocks, and steep pitches.
 - b. All injuries must be reported to the instructor/paraprofessional on site.
 - c. All serious injury, fatality, or other tragedy, as well as damage to CC's physical property must be notified to the Environmental Health and Safety (EHS) office as soon as possible, but at least within 24 hours. In the event EHS cannot be contacted, notify the CC Campus Safety office.
2. Medical and First Aid
 - a. Health risks are specific to the area of travel.
 - b. Consult health advisories for necessary immunizations or other precautions. Sites such as consulates and the CDC are good sources for information.
 - c. Carry a copy of your medical insurance agreement for emergency treatment.
 - d. Environmental conditions such as exposure, dehydration, heat stroke and exhaustion, altitude sickness, etc., must be considered in advance.
 - e. Make a first aid checklist (e.g., Mylanta, Advil, cold compresses, burn kit, dressings, etc.). Standard first aid kits usually need augmentation tailored to specific field conditions. Antihistamines, analgesics, disinfectants, and anti-venom may be necessary.
 - f. Preexisting conditions placing field workers at risk, or those under medication that may affect their ability in the field, must be identified to the field supervisor in advance.
 - g. Consider the potential for wildlife encounters with venomous insects and dangerous plants (poison oak/sumac/ivy, briar, etc.) and animals (snakes, mountain lions, jellyfish, etc.).
 - h. Consider communicable diseases (hemorrhagic fever, hantavirus, rabies, Lyme disease, etc.).
3. Crime or Violence
 - a. Areas with dangerous activities should be approached with prudence. Some areas very close to houses can be potentially dangerous when alone or if working at night.
 - b. If a threatening condition occurs, relocate to a safer location such as a locked car, populated area, or well-lighted area, if possible.
 - c. Keep belongings, particularly small and expensive items (cameras, instruments, backpacks, etc.) either locked up or with you at all times.
 - d. Maintain a group or buddy system when working in areas of crime (such as near a public marina after hours).
 - e. Always call 911, or other local emergency lines, if you are at physical risk of harm and injury.
 - f. Please notify CC Campus Safety any time there is a hazard on campus or CC affiliate property (e.g., Baca Grande campus, Gilmore Stabler Cabin).
4. Vehicle Safety
 - a. Students taking their own vehicle or driving others in their personal vehicles are responsible for the welfare of all riders. Vehicle load limits apply and seatbelts must be available for each passenger.
 - b. Any driver of a College vehicle, or a vehicle rented by the College, must meet the minimum age specified on the rental agreement, have a valid U.S. driver's license, follow all vehicle safety laws, and have approval via the Colorado College Transportation office's "**Certified Driver's List.**"

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- i. Eligibility requires the driver to hold a current and valid U.S. driver's license, have a good driving record, be insurable by Colorado College's insurance carrier, meet the College's driver certification requirements, and be at least 20 years of age (if driving outside of Colorado Springs city limits).
 - ii. More info at the Facilities Transportation website:
<https://www.coloradocollege.edu/offices/facilities/transportation.html>
 - c. Most fatal field accidents are related to vehicle travel. Drivers need to use common sense and operate their vehicles in a conservative manner. Drivers should constantly remember their responsibilities and that their actions could affect the safety and lives of their passengers.
 - d. If feeling too tired to drive safely, stop driving.
 - e. All highway and local by-laws, rules, and regulations must be strictly adhered to.
 - f. College and rental vehicles are not to be used for recreational or unsafe purposes while conducting College business.
 - g. Please report all CC vehicle accidents and damage to the Transportation office as soon as possible, in addition to filling out the incident reporting forms found in each CC vehicle. If using a rented vehicle, follow the communication steps laid out in the rental agreement.
5. Tool Use
- a. Hand tools or specialized equipment (climbing gear, rock hammers, etc.) must be adequately maintained and routinely inspected.
 - b. Users should be well-acquainted with proper tool and equipment use prior to going to the field.
 - c. Specialized power tools such as chainsaws, chippers, etc. require safety equipment and advance training.
 - d. Sampling equipment using ballistics, energized sources, or other hazardous implements must have a standard operating procedure. Some equipment may require documented training.
6. Chemical Safety
- a. Prudent practices used in the laboratory extend to the field.
 - b. Proper personal protection equipment (gloves, glasses, dust masks, etc.) should be worn.
 - c. All chemicals transported (fixatives, solvents, etc.) must be transported in a labeled and durable secondary container.
 - d. Any hazardous waste must be disposed of properly and legally.
 - e. MSDS sheets should be available in the field for all chemicals that may come into contact with in the field work.
 - f. Certain protected environments may require human waste to be contained, packed out of the field area, and disposed of properly. Check local regulations.

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HAZARD INFORMATION:

1. Vehicle Safety
 - a. Inspect vehicle to see if in safe operating condition.
 - b. Pack appropriate emergency supplies.
 - c. Become familiar with the vehicle's operation and local laws.
 - d. Be alert to hazards, such as fatigue, animals, logs, rocks, barbed wire, etc.
 - e. Do not drive a vehicle into water of unknown depth.
 - f. Some vehicles require specialized training, e.g., Boating Safety, Forklift operator.
2. Biological Hazards
 - a. Common hazards include insects, spiders, snakes, bears, and poison ivy/oak/sumac.
 - b. Become familiar with the types of wildlife that may be encountered and learn how to avoid attacks and treat stings/bites.
 - c. Wear protective clothing, e.g., long pants in tick areas, steel-toed boots in snake areas.
 - d. Shake clothing and bedding before use.
 - e. Do not set up tents near nests or burrows.
 - f. Wildlife may transmit diseases like rabies, Lyme disease, tetanus, West Nile virus, St. Louis encephalitis. Microorganisms in water cause giardiasis and other ailments.
 - g. Carry drinking water, use purification methods where appropriate, and always bring water to a rolling boil for at least one minute before consuming.
3. Physical Hazards
 - a. Check the weather forecast.
 - b. Be mindful of the danger of sun exposure. Wear sunblock and protective clothing.
 - c. Excessive heat can lead to heat exhaustion and heat stroke.
 - d. Drink plenty of liquids.
 - e. Take shelter inside a building or vehicle during a lightning- or thunder-storm. If caught away from shelter, get away from tall objects and crouch to the ground to make yourself as small as possible. Note that in high mountains, you may not be able to visibly see a storm close enough to strike.
 - f. Get off open water when can see thunder and lightning. If not possible, shelter in the cabin.
 - g. Lightning may start wildfires.
 - h. Find out if the field area is prone to flooding, especially flash floods.
4. Personal Safety
 - a. Research can place workers in vulnerable situations, such as the risk of violence from strangers or psychological stress.
 - b. Complete a risk assessment to identify risks associated with travel, location, and study subject. Consider controls for each risk, such as training and emergency communication.
 - c. Fieldwork should consist of at least two people. Work with a partner.
 - d. Do not give out personal information, or camp locations.
 - e. When traveling abroad, dress and act in alignment with local laws and customs.
 - f. Sign up for STEP, a free traveler alert program, through www.travel.state.gov.

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RESOURCES:

| Institute | Telephone Number | Website |
|---|---|---|
| CC Center for Global Ed & Field Study | 719-389-6077 | https://www.coloradocollege.edu/offices/globalandfieldstudy/ |
| CC Environmental Health and Safety (EHS) | Non-emergency: 719-389-6678 Emergency/After-hours: 719-389-6707 | https://www.coloradocollege.edu/offices/facilities/environmental-health-safety/index.html |
| CC Office of Field Study (Drew Cavin) | 719-389-7613 | https://www.coloradocollege.edu/offices/globalandfieldstudy/fieldstudy/index.html |
| CC Reporting | 800-461-9330 | https://www.coloradocollege.edu/offices/titleix/ |
| CC Student Health Center | 710-389-6384 | https://www.coloradocollege.edu/offices/studenthealthcenter/ |
| Bureau of Consular Affairs (for international travelers) | Emergency: Within U.S. 888-407-4747 Outside U.S. 202-501-4444 | http://studentsabroad.state.gov/ http://www.travel.state.gov |
| Centers for Disease Control and Prevention (CDC) | 800-CDC-INFO (800-232-4636) | http://www.cdc.gov/travel/destinations/lists.htm |
| Colorado Fish and Wildlife Conservation Office | 303-236-4216 | https://www.fws.gov/office/colorado-fish-and-wildlife-conservation |
| Colorado Parks and Wildlife | CPW: 719-227-5200 State Parks: 719-576-2016 | https://www.cpwshop.com/home.page |
| El Paso County Public Health Dept | 719-578-3199 | https://www.elpasocountyhealth.org/ |

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GLOBAL EDUCATION AND FIELD STUDY TRIP PLAN SUBMISSION FORM INFORMATION

URL: <https://www.coloradocollege.edu/offices/globalandfieldstudy/fieldstudy/field-trip-procedures/index.html>

1. Submitter's Name (if different than faculty)
2. Your email address
3. Course name, number, and title (e.g., ENG 101 Intro to Literature)
4. Academic Year
5. Block
6. Faculty Name
7. Faculty Cell Number
8. Paraprofessional Name
9. Paraprofessional Cell Number
10. Trip Itinerary (Please include the address(es) of any major stops and overnight accommodations. If your trip doesn't leave El Paso County, you do not need to submit a form.)
11. Departure Date (M/d/yyyy)
12. Return Date (M/d/yyyy)
13. Brief description of trip(s)

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VEHICLE CHECKLIST

VISIBILITY

- Lights (headlights, tail lights, brake lights, turn signal lights, hazard lights)
- Windshield (cracks, wipers)
- Mirrors (side, rearview)
- Window defroster
- Horn

MECHANICAL

- Fluid levels (brake, steering, oil, water, windshield)
- Fuel
- Brakes (+ parking brake)
- Seatbelts
- Running boards, steps
- Tire air pressure
- Review maintenance records

EMERGENCY

- Spare tire, jack, lug wrench
- Air compressor
- Foam tire sealant, tire repair kit
- Cell phone
- First aid kit
- Fire extinguisher (charged and inspected)
- Warning light, hazard triangle, flares
- Jumper cables or jumper battery pack
- Flashlight
- Roadside-assistance number
- Pen and paper
- Water and nonperishable food
- Sleeping bag/blanket
- Basic tools (socket set, pliers, screwdrivers)
- Shovel and axe

MISCELLANEOUS

- Cash for tolls