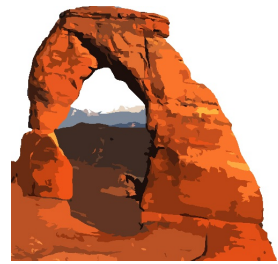




GEL1530/GEL3530
Field Geology: Variable Topics
Planning Guide, Packing List, Transportation



General:

A little planning will go a long way to making this a meaningful and pleasurable trip.

WHAT YOUR TRIP FEE WILL COVER (any overages will be reimbursed)


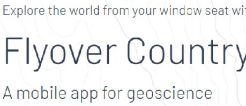

- | | |
|---|---|
| <input type="checkbox"/> All Transportation from Denver
<input type="checkbox"/> All lodging / campground fees | <input type="checkbox"/> All entry fees to parks, monuments, museums, etc.
<input type="checkbox"/> Administrative trip and instructor fees in accordance with University Policy |
|---|---|

Note: Meals are NOT covered by the trip fees. For detailed meal instructions see the [COOKING MINI GROUPS, CAMPING GEAR & INSTRUCTIONS](#) document.

TEXTBOOKS & MATERIALS

- Textbooks: See your appropriate course syllabus for details!
- Hard Cover Geology Field Notebook (4 3/4" x 7 1/2")

Handy Cell-Phone Apps (optional)

	<p>RockD https://rockd.org/ Available for Android and iPhone</p>	<p>Uses GPS technology to identify the geologic formation you are standing on and provide details such as age, composition, stratigraphy, position, and elevation and much more.</p>
	<p>FlyoverCountry https://flyovercountry.io/ Available for Android and iPhone</p>	<p>App will pull geologic information along the path of your flight, hike, or road trip with inflight maps and GPS tracking. Can be used offline (after trip download) to show maps with interactive POI and geologic data, such as geologic maps, landscape features, fossils digs, etc.</p>
	<p>Geology Sample Collector abandoned, but still available as APK download for Android https://www.apkfollow.com/download/arb.com.shopze.us.android.majorforms.1000_dcf35_2015-06-01.apk/</p>	<p>Document your field work incorporating images, video, audio recordings, and/or text. Track (with GPS) your path. Tracks sample collection sites and locations. Give it a try, it is free. Once your collecting is completed, you can automatically create a powerpoint or video of the sampling.</p>

TRANSPORTATION

Van rentals have become increasingly difficult to secure for field trips over the last few years. However, the State of Colorado Motorpool has some limited vehicles available that have GAS INCLUDED without a mileage charge. Each vehicle comes with a State gas card and all fuel will be paid for by the State of Colorado. This is by far the best and cheapest transportation option for our field trips and we will use the State Motorpool as much as we can to keep transportation costs to a minimum. Seating is limited and cargo space will be at a premium, therefore some adjustments in our camping and travel behavior will be needed. Some of you may be asked to help drive these State Vehicles, which are either Minivans or SUVs.

Personal Vehicles

Can you bring your own personal vehicle on the trip? Only with permission of the instructor(s) and by agreeing to the following requirements:

1. You will need to pay the FULL trip fee for this fieldtrip without any reduction in cost despite that you are self-driving.
2. You will be fully responsible for your own gas and other related travel costs (tolls, parking, certain vehicle entry fees into parks or recreational areas) with NO reimbursement from the university.
3. Any damages to your vehicle must be fully covered by you or your insurance. There will be no financial support for your vehicle from the university.

Commitment: All drivers of State vehicles must commit to a **ZERO alcohol & drug** policy at ALL times. If you can't abide by this rule, do NOT volunteer to drive.

Car Passengers:


Groups traveling together are for the most part self-selected. However, sometimes assignments need to be made and rotations of travelers might be necessary. Groups could be naturally aligned with the small meal groups set forth in the [COOKING MINI GROUPS, CAMPING GEAR & INSTRUCTIONS](#) document for this trip.

Once assigned to a group and vehicle, please be courteous of the driver's requests. Help clean out the car during gasoline stops and volunteer to wash windows or participate in other helpful vehicle activities. Drivers should also be courteous of passenger's needs, such as bathroom breaks, or other reasonable requests.

THINGS YOU MUST BRING

This is just an overview. Details are set forth in the COOKING MINI GROUPS, CAMPING GEAR & INSTRUCTIONS document associated with this trip.

FOR CAMPING

- Sleeping bag and insulating ground pad
- Tent (best to share with a "buddy" or "buddies" to keep number of tents low)
- Pillows
- Extra blanket(s) (nights can be well below freezing)
- Mess Kit (Knife, Fork, Spoon, Plate, Cup)
- Sewing kit
- Personal Hygiene Items
- Towels
- Wet Wipes (!)
- Hand Lotion
- Insect Repellent
- Small First Aid Kit (Band-aids, etc.)
- Pocket Knife / Utility Knife
- Tweezers (for cactus needles)
- Flashlight, or better Headlamp
- Lighter(s)
- Swim trunks / Bathing suits
- TOILET PAPER
- Rope/nylon string
-  Prescription Medication

FOR HIKING / DAY TRIPS

- Daypack
- Water Canteen / Bottle
- Good hiking boots (broken in)! Do not try to break in during field course.
- Several pairs of GOOD hiking socks
- Rain coat or poncho (small roll-up to carry in backpack)
- Broad-brimmed sun hat. You are often in full sun.
- Beanie hat. High elevations or nights may get sensitively cold, even in Summer.
- Sunscreen, sunblock (40+).
- Sun glasses.
- Protective cell phone case / pouch!
- Gloves, for handling rough rocks and against cold.
- Drinking Water. PLENTY!
- First aid kit, especially band-aids. Blister tape comes in handy. Moleskin.
- Snacks / Trail Mix (provided; don't forget to pack)
- Safety pins
- Band-aids / First Aid Kit
- Hiking Poles (optional)

ADDITIONAL COURSE MATERIAL YOU SHOULD BRING

GEOLOGY TOOLS (GENERAL)

- Rock Hammer
- Sampling Bags (Ziplock™). Heavy duty preferred (get the thickest ones you can) or better yet, cloth bags!
- Small index cards to place with sample into ziplock
- NOTEBOOK (There are waterproof field notebooks)
- Day Pack Backpack to carry it all (Well, duh!)
- Camera or Cell phone Camera
- Cell phone off-line map app and GPS
- Sharpie™
- Short Ruler
- Protractor Ruler (6 in)
- Small Tape measure (~2m length)



- Clipboard with cover (9"+ wide, suitable for maps / airphotos) Regular clipboards are too narrow to hold standard 9" x 9" aerial photos. Either purchase or make your own.
- Rock / Mineral Analysis Testing kit which includes:
 - Acid Bottle, Handlens
 - Streak Plate(s), Hardness Testing, Magnet
 - Rapid Density Test Kit
 - Water for analysis & density tester
- A few small sample bottles for small specimens
- Pocket knife (Swiss Army style)
- Toilet paper or paper towels (to wrap specimens) ...and possibly other important business ☺

Optional, not required, but will come in really handy

- | | |
|---|---|
| <input type="checkbox"/> Pocket microscope | <input type="checkbox"/> Magnets (Keep those far away from your Brunton™, especially during measurements) |
| <input type="checkbox"/> Water bottle (for analysis) | <input type="checkbox"/> Cell phone metal detector |
| <input type="checkbox"/> Chemical ID Kit (Micro torch, various acids, glass slides, etc.) | <input type="checkbox"/> Chisel |
| <input type="checkbox"/> Dr. K's Manual of Rapid Mineral Identification | <input type="checkbox"/> Goldpan |
| <input type="checkbox"/> Lighter | <input type="checkbox"/> Cell Phone Calculator |

FOOD

Food is NOT provided through trip fees other than occasional dining out at the discretion of the trip leaders. For meals you will be organized into mini meal groups, usually the same group that travels in a vehicle. These small groups will be responsible for collective food planning before the trip and food preparations during the trip.

A detailed plan of how meals will be organized is found in the [COOKING MINI GROUPS, CAMPING GEAR & INSTRUCTIONS](#) document. Refer to this paper for detailed instructions.

MINE VISIT ATTIRE and RULES

If the trip includes a visit to an active mine, the following is required on mine visitation day:

- Long Pants! NO shorts or skirts
- Safety boots / appropriate foot wear (no open-toed shoes) - does NOT need to be steel toed
- Safety Glasses - Bring your own if you have them. We have a few loaners!
- Hard Hat - provided by the EAS department or bring your own
- High-Visibility Vest - provided by the EAS department or bring your own

NOTE: Mineral collecting is prohibited in certain mines. Make sure to ask permission even if allowed! Strictly follow the rules! Make a professional impression. This may be your future employer!!!

DRIVERS: The majority of mines are left-hand traffic! In addition the following rules apply: (1) sound horn once before starting engine (may NOT be required for light vehicles); (2) sound horn twice before driving forward; (3) sound horn three times before reversing; (4) two seconds delay is required before starting or driving; (5) all passengers must be buckled when the vehicle is in motion.

SOME GENERAL CONSIDERATIONS

Showers and Washing clothes: This outdoor experience will have limited opportunities to shower, bathe or washing your clothes, depending on our destination(s). As a substitute for showering, wet wipes have been proven to be an effective alternate. While we frequently boil water for cleaning purposes, it is usually never enough for the clothe and hygiene needs of your group. Some places we will have running cold water from outdoor spigots that can be used for personal hygiene and clothe washing.

Cell Phones: Because of the likely remoteness of areas traversed, cell phone service, no matter which carrier, will be frequently unavailable. If you would like to use your cell phone for field work, make sure that the apps you are considering do work off-line. Charging of your cell devices can be accomplished while driving on a rotating basis. On occasion, charging at our camp sites is possible. Please bring all relevant charging cables and adapters. A protective case / pouch for your cell phone is essential.

Clothing: Be prepared for both cold and hot weather conditions. Remember "LAYERING"! Shorts and T-shirts make good hiking clothes when the weather is hot. Wool is recommended for cold conditions. And bring a raincoat! For common below freezing nights bring an extra blanket or two in addition to your sleeping bag.

Footwear: You should bring some comfortable, broken in hiking boots and high quality socks. Do NOT try to break in new boots during the Field Trip. We have doctored up many vicious blisters from students who tried. Sometimes the blister culprit is low quality socks. Wool and cotton are the preferred materials. Just in case, bring some blister tape for your feet.

Food & Eating: Communal meal preparation in small group settings as explained above are the standard. You will be responsible for preparing your daily sack lunch. Additionally, you may want to bring snacks, such as granola or trail mix, if you like. Bring extra drink, if desired, but absolutely leave alcoholic beverages at home. A canteen to carry water is essential.

When you are done eating or cooking, wipe your plates, pots and utensils thoroughly with a paper towel to remove all grease before washing in communal hot water dish washing facilities, when provided. Nothing is more annoying than someones greasy dish now distributing its mess on every subsequent dish being immersed in the same dish water.

Facilities: Out of courtesy to students and mother nature, the trip camping places will have facilities available, sometimes very primitive, sometimes more elaborate. During our day hikes, however, we may be far away from such facilities and students might need to relieve themselves in the countryside. For this purpose it might be wise to carry some toilet paper and disinfectant gel or wipes with you. Please make sure that any waste is properly buried.

Buddy System: Yes, you never outgrow this common sense admonition. If you want to go exploring, please take someone with you. In addition, let an instructor know where you are planning to go and when you intend to be back. **Please take this serious!** We have wasted many hours searching for “lost” students where nobody knew where they went.

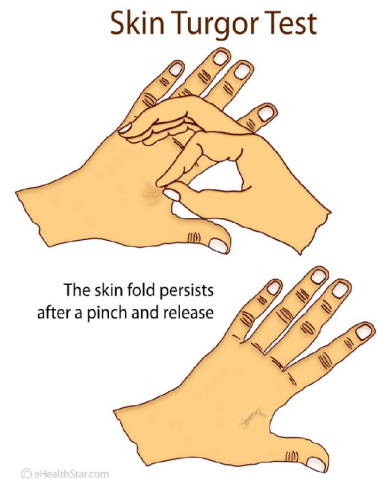
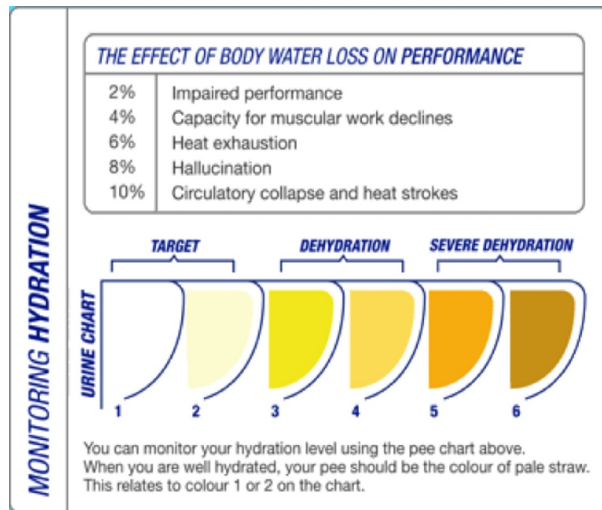
Water: Remember, for the majority of our outings you will be hiking in a desert. You should be prepared to carry **TWICE** as much water as you think you will need. We strongly suggest that you carry at least a gallon when we are on long hikes. Dehydration is serious. Swelling fingers and headaches are good indications of dehydration. Adding an electrolyte (Gatorade, mineral water) to tap water will quench your thirst during desert hikes much better than just plain water. You may also use salt tablets when hiking as well as snack/protein bars.

For effective external cooling try a spray bottle to wet yourself. There are combination drinking bottles with attached sprayer unit available. Those might not be a bad investment when hiking in desert climates.

You can estimate your hydration level according to the Skin Turgor Test or the Urine Color Chart.

Turgor Test: A pinched skin fold should subside instantaneously if you are well hydrated. If the pinched skin stays distorted you will need to drink some water.

Urine Test: When you relieve yourself, look at the color of your urine. It should be as light in color as possible, maximal a light straw yellow color. Any darker color means dehydration. Rule of thumb: The darker your urine color, the more dehydrated you are. Very dark urine color is cause for concern. Drink water immediately. Also, don't try to play macho and be shy to ask someone else for water. It can happen and we are happy to share.



Heatstroke: This is relatively common when someone becomes dehydrated. It often starts very innocently with feeling of a dry mouth and sometimes having a nose bleed. The next phase are headaches which can start out mild and a beginning of swelling of the tongue and/or muscle cramps. A Turgor Test at this time will be incredibly positive. Heatstroke may also cause flu like symptoms such as cold shivers, sweats, body and skin aches and fever.

As a remedy, drink a lot and rest in the shade. You may also want to use a spray bottle to wet yourself down. Make sure you wear a hat which is absolutely essential. Better safe than sorry!

Campfires: In some places we will be allowed to have campfires. Because of wood pest infestations, bringing or collecting our own firewood is no longer allowed. Firewood must be purchased at each campsite individually. It is imperative that campfire rules are

followed. All fires must be COMPLETELY extinguished. That means using water to douse the fire multiple times, stirring the coals occasionally in the process to assure that the fire is completely extinguished.

The responsibility to extinguish the fire rests with those that go to bed last. DO NOT USE SAND to try to extinguish the fire before you turn in for the night. **IT MUST BE WATER!!!**

INJURIES (especially minor ones): Sometimes students play macho when they have been injured during a hike or around the campfire thinking that it is not a big deal. Untreated injuries can become severely infected and unfortunately we had students in the past that suffered needlessly or developed painful and long lasting nasty scars. As a general rule please report ALL injuries to an instructor, even if you think it is benign. This includes for example blisters and sunburn.

Be aware that instructors are not allowed to dispense medication or treat you. They could, however, drive you to a clinic or a pharmacy if needs be to initiate your own treatment and prescriptions.

ANAPHYLACTIC ALLERGIES: If you have severe allergies that require anaphylactic medication, let the instructor's know. Bring all your necessary medication, e.g. EpiPen®. You should also train a trip "buddy" to intervene in your behalf and if necessary administer those medications in case of exposure and reaction. Remember that you might be hours from the nearest medical facility.