

SYLLABUS

Geology 111B - Field Techniques

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Catalog Description and General Course Information:

Geology 111B- Field Techniques- An introduction to geologic field methods including descriptions of rocks, geologic mapping, observation, interpretation and geologic report writing. Detailed mapping techniques will also be covered. Consists of off-campus fieldwork. Note: Fee course. 2 units.

This course will be taught entirely off campus at Red Rock Canyon State Park in the Mojave Desert near Cantil, CA. We will be camped at the Ricardo Campground within the park. For information about the park and a sneak preview of the geology, you may want to visit the website (<http://www.calparks Mojave.com/redrocks/index.html>). The emergency phone number at the park is 805-942-0662. Cell phone reception is very poor unless you climb to an adjacent ridge in the campground. We will travel to the Sierra Trails RV Park 15 miles south on Hwy 14 to write the first report. There are tables/chairs and electrical outlets available in an air conditioned room to work on your report. Also available are showers (\$5), pay phone, and laundry facilities. We will return to camp each night to sleep.

Field Environment and Safety Considerations:

Generally, much of the area that we will encounter is fairly rugged and in the high desert (~2600'). The weather will probably be windy with temperatures ranging between 60 to 80 in the day and in the 40's at night. Be prepared. A good, healthy physical condition is essential to negotiate the mapping areas. So, be in shape and make sure that your field equipment is in good condition. Carry enough water with you for an 8-hour field day. (See *Equipment List for other necessary items.*)

Conduct your fieldwork safely. There are many other people hiking around so do not roll boulders down hills. Leave the animals alone. Be on the alert for rattlesnakes; use your rock hammer to first turn over a rock before picking it up to avoid scorpion bites. Be courteous to the geology. Help preserve nice outcrops; sample from inconspicuous outcrops or float. Preserve the CSUS Geology Department's good reputation at Red Rock Canyon State Park and at the RV Park.

University Policy states that there will be **no transport or use of alcoholic beverages or illegal drugs** on field trips. This policy will be strictly enforced.

Finally, be careful while traveling by van to and from the field areas! These are the times of greatest personal risk! Fasten seat belts and obey safety standards. When caravanning, follow the instructor's vehicle and stop if you lose sight of the caravan vehicle behind you.

Textbooks:

Compton, 1985, *Geology in the Field* (text is also used in Geol 111A & B)
Physical Geology text, other geology texts, handouts and assignments from G111A

Fees:

The **\$65 course fee** must be paid by April 1 and a copy of the receipt given to me before we leave. The course fee will cover the cost of transportation and camping at Red Rock Canyon. You will also need money to pay for food, showers, and other incidentals. You should also have a credit card or additional money with you for emergencies (bus fare back to Sacramento should you become sick or injured or not abide by the rules of the course or University).

Prerequisites:

Passing grade in GEOL 10, 10L, 12, 12L, 100, GEOL 103A and 111A. *Prerequisites will be strictly enforced.*

Grading:

Participation in the field (including attitude & promptness)	10%
Field notebook inspection	10%
First Mapping Project	30%
Final Mapping Project	50%

Late assignments will lose one letter grade for each hour late.

Team Work:

You are strongly encouraged to choose your own field partner for each exercise. Groups of two are recommended. Partners should share skills and knowledge while together in the field (but not in camp, home, or any other place. **Reports and all illustrations must be done alone**). The reasons for having partners is primarily for safety, but also for learning from one another. If you choose not to team up with a partner, then you must be extra careful in the field and you will need to plot your day's route each morning and give this to the instructor. Rendezvous points will be determined at the beginning of each field day. You or your group must make the rendezvous point at the assigned time. Failure to do so could endanger the entire class, as a search party will be quickly formed to look for you. Searches will generally only take place during daylight hours. You may switch mapping partners between exercises or anytime that you inform the instructor.

SCHEDULE

DATE	ACTIVITY
April 1 (8 a.m.) (Thursday)	Leave CSUS at 8 a.m. to drive to Red Rock Canyon. <i>Evening meeting at 7 p.m. to discuss first mapping project.</i>
April 2	First day of mapping for Project One. Meet at vans at 8 a.m. <i>Evening: ink field maps;</i>
April 3	Second day of mapping. Meet at basalt outcrop at entrance to Campground at 8 a. m. <i>Evening: draft strat column and ink map.</i>
April 4	Third day of mapping. Leave from camp on your own. <i>Evening: finish inking and drafting map and draw cross section (in assigned location).</i>
April 5 (Monday)	Write first report (<i>Lithology, Structure, and Geologic History Sections plus Map, Strat Column, and Cross Section</i>) Field Report I due 9 p.m.
April 6	First day of mapping for Project II. Meet at vans at 8 a.m. <i>Evening: ink maps.</i>
April 7	Second day of mapping for Project II. Meet at vans at 8 a.m. <i>Evening: ink map and draw strat column.</i>
April 8 (Thursday)	Third day of mapping for Project II. Meet at vans at 8 a.m. Break camp and drive to Sacramento!! <i>Ink map and Explanation; due April 15.</i>
May 24	Field Report II Due by 4 p.m. in Placer Hall 1015. (Also hand in Report I and field notebooks)

Geology 111B Equipment List

You must have the proper field gear with you at all times during geologic traverses:

- _____ Brunton compass (supplied by department) on a belt
- _____ Hand lens (10x)
- _____ Hammer
- _____ Safety Pins (for poking holes in maps)
- _____ Compton
- _____ Field Notebooks (you will need 2 soft-cover field notebooks)
- _____ Scales-bring several small rulers with various scales, including some with mm/cm divisions.
- _____ Covered Clipboard; or clipboard with clear hard plastic overlay protection
- _____ Hydrochloric Acid (dilute) (get from Steve)
- _____ Pencils, pens, colored pencils, pencil sharpener
- _____ Protractors (several)
- _____ Fieldpack or pouch with -
 - _____ magnet
 - _____ waterproof matches
 - _____ water
 - _____ lunch
 - _____ extra clothing
 - _____ rain gear
 - _____ first aid kit
- _____ plastic bag (for protection of maps, etc. in an unlikely downpour)
- _____ knife
- _____ sturdy boots, thick (noncotton) socks and liners

- _____ Make sure that you have extras of items that are easily lost, such as protractors, pencils and sharpener.

Other items

- _____ hat (you will need to carry your own shade... get a broad brim hat with a chin strap!)
- _____ sunscreen (SPF 15 or greater)
- _____ sunburn cream
- _____ sunglasses
- _____ lip chapstick (with SPF 15 or greater)
- _____ lip salve
- _____ T.P.
- _____ camera (optional)
- _____ small binoculars (are sometimes useful, but only if you already have them)
- _____ sample bags (ziplock bags work well)
- _____ marking pen for samples ("Sharpie" brand is best)
- _____ technical ink pens/drafting gear

Over---->

Camp Gear

- _____ sleeping bag
- _____ sleeping pad
- _____ tent (windproof with stakes that work well in sand)
- _____ shade awning (optional)
- _____ folding lawn chair (must be small and portable)
- _____ masonite board to draft figures on
- _____ clothesline (nylon rope)
- _____ white gas or propane canister
- _____ cooking stove (propane or white gas) and cookware/dishes/soap, etc.
- _____ cooler/ice/food for 3 days (we will shop for food for last 3 days in Mojave on June 3)
- _____ flashlight
- _____ alarm clock
- _____ soap, towels, toiletries, TP
- _____ Solar Shower (2.5 gallon size) (there are some secluded spots along the cliffs (hoodoos) to hang a solar shower at camp)
- _____ water bottles and/or bag
- _____ moleskin to prevent blisters
- _____ blister kit
- _____ first aid kit (with scissor & tweezers)
- _____ jogging shoes/Tevas
- _____ heavy socks and thin liners for hiking boots
- _____ underwear
- _____ swim suit
- _____ long pants (pants with zip off legs work well)
- _____ long sleeve shirts with a collar (best for sun protection are light colored)
- _____ shorts
- _____ T-shirts
- _____ jacket for evenings (polypro or sweatshirt)
- _____ rain jacket and pants or poncho (probably will not need this, but you do need a windbreaker)

Note: There are showers and a laundry facility at the RV Park where we will go to write the first report.

The following are **forbidden** during the field course:

- Consumption of alcoholic beverages, or any recreational drug
- Radios/CD players (portable with headphones OK during evening)
- Loud talking/laughing/yelling that disturbs your classmates and fellow campers in the campground
- Firearms