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.calparksmojave.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

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