GEOL 210 Introduction to Geologic Field Methods

http://www.geology.cwu.edu/facstaff/egger/courses/GEOL_210.html

September 1-15, 2015
To Bishop, California, and back
September 16-18, 2015 on campus

Course description: This course is intended for students who are considering or planning on majoring in the Geological Sciences and related fields. You will have the opportunity to apply your knowledge from introductory geology courses to a spectacular field location in eastern California, where you will learn standard geologic field techniques and data analysis.

When we return to campus, we will spend three days in the lab introducing you to ArcGIS and mapping digitally.

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Overview and course goals
The discipline of geology is grounded in observations of the Earth. Geologists make observations of the Earth at all scales, from a satellite image to an outcrop to a hand sample to a microscopic image; they place these observations within geographic, spatial, and temporal frameworks in order to draw conclusions about processes that have occurred within the complex Earth system. The skills involved in making these types of observations and using them as evidence are critical for students of geology to learn, but are also important for anyone who will be teaching Earth science or working with geoscientists in the future.

The primary goal of this course is to provide you with the opportunity to learn and apply these skills that are fundamental to the discipline. By the end of this course, you will be able to:

• Collect and record data using common geologic field methods and tools;
• Synthesize geologic data you’ve collected in the field by producing geologic maps and cross-sections;
• Develop a reasonable geologic history based on multiple lines of evidence.

These are not the only goals we have, however, because we could do that without ever leaving Ellensburg. Our additional goals are to:

• Expose you to a spectacular environment, where several different geologic processes are present and well-exposed;
• Build a community of undergraduates who are interested in and excited about geology.

In order to achieve all of these goals, we will travel to Owens Valley in California, on the eastern side of the Sierra Nevada, and spend ten days working in two different field areas. This is a familiar and favorite area for many geologists, your instructors included, and we think you will see why very quickly.
Logistics

Course fee
In addition to tuition, this field course requires that each student pay $1200 for (1) food & lodging at the White Mountain Research Center, (2) CWU van transportation, (3) a drafting kit, map board, and course packet. This charge will appear on your Fall 2014 bill. Past GEOL 210 students have made arrangements with CWU’s Financial Aid office in Barge Hall to increase their financial aid to cover these costs.

Tuition
GEOL 210 is a Fall Quarter course for 4 credits, so you will not pay summer tuition. If you register for more than 18 credits in the fall (including 4 for GEOL 210), you’ll be charged for each additional credit.

Registration
All students must be registered for GEOL 210 before we leave on September 1. Registration for Fall Quarter is May 11-June 19, 2015. This is a “by permission only” course; permission numbers are available from the department secretary, Moriah Kauer, in Lind 108b.

Insurance, liability, and food
All students must fill out and return an insurance and liability form, available as a form that can be filled out directly in Adobe Acrobat. Please download it from the website and return it, filled out, to Moriah Kauer in Lind 108b by Friday, June 5, the last day of classes.

The other important part of this form is letting us know about food allergies so that we can tell the cooks at the field stations.

Course materials
There is no textbook for this course. You do, however, need the following:

- A 10x hand lens and lanyard;
  *We recommend the BELOMO Triplet, available from Geo-Tools ([http://www.geo-tools.com/lens.htm](http://www.geo-tools.com/lens.htm)) with the lanyard on the same page*
- A rock hammer;
  *We recommend the 22 oz. Estwing rock pick, also available from Geo-Tools ([http://www.geo-tools.com/pick22.htm](http://www.geo-tools.com/pick22.htm))*

A complete equipment list (including general field gear) is available on the GEOL 210 website ([http://www.geology.cwu.edu/facstaff/egger/courses/GEOL_210.html](http://www.geology.cwu.edu/facstaff/egger/courses/GEOL_210.html)).

Where we stay
We stay at two field stations that are part of the White Mountain Research Center (WMRC), owned by the University of California. We will spend most of our time at the Owens Valley Laboratory (OVL), near Bishop, CA, as well as a few nights at Crooked Creek up at 10,000’ in the White Mountains. There are dorms with beds and showers as well as coin-operated laundry facilities at OVL; Crooked Creek has no laundry facilities but all of the other amenities. Both have excellent cooks who feed us well; both are tobacco-free. The address for WMRC is 3000 East Line Street, Bishop, CA 93514, phone: 760-873-4344.
Schedule

Friday, June 5       Insurance and liability form due to Moriah Kauer Lind 108b
Monday, Aug. 31 2:00 - 3:00 pm Packing Meeting 102 Lind Hall
Tuesday, Sept. 1 6:00 am Leave Ellensburg
Weds., Sept. 2 5:00 pm Arrive in Bishop
Thurs., Sept. 3-Sun., Sept. 13 Field work!
Monday, Sept. 14 8:30 am Depart Bishop
Tuesday, Sept. 15 5:00 pm Arrive in Ellensburg
Weds-Fri, Sept. 16-18 10:00-12:00 and 1:00-4:00 pm GIS work on campus

The nature of field work
The Owens Valley is high desert. Most of our field work will take place between 4500’ and 6500’ and daytime temperatures can reach the upper 90’s (or even low 100’s). We will be hiking and working outside most days from 8:30 to 5:00, and it is important to take care of yourself by wearing sunscreen, drinking water, eating enough food, and wearing a hat and appropriate clothing. You can also help prepare yourself by doing some walking and hiking this summer before our trip, but the work we do is accessible for people at many different fitness levels.

What happens when we get back?
After we return, we will meet for the next three days for two hours in the morning and three in the afternoon in the GIS lab in Dean Hall to digitize the work you’ve done and start to learn how to use ArcGIS. There will be a final project due from the digitizing that is part of your grade for the course.

Van drivers
We need students who are qualified to drive CWU’s 15-passenger vans. In order to qualify, you must be comfortable driving a large vehicle and have some experience with it (please be honest – this is a significant responsibility) and pass CWU’s driving exam. If you are not already qualified and are interested in being qualified, you need to take the driving exam. Go to www.cwuce.org/vansafety/course.asp

Username: cwu
Password: drivesafe

They will need a copy of your driver’s license on file at Motorpool as well. Once you have completed the course, please email your completion certificate to Anne Egger (annegger@geology.cwu.edu).

On the road, we caravan in a pre-defined order. Keep both the vehicle in front of you and behind you in view. We will share cell phone numbers to contact one another if necessary and try to give advance warning for all maneuvers.
Assessment
Grading is based on the assignments and point values below, and will follow a grading scale (90-100% → A- to A; 80-89% → B- to B+; 70-79% → C- to C+; 60-69% → D- to D+; <60% → F).

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<thead>
<tr>
<th>Assignment</th>
<th>Points</th>
<th>Project points</th>
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<tbody>
<tr>
<td>Big Pine project</td>
<td>Map</td>
<td>10</td>
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<td></td>
<td>Descriptions</td>
<td>10</td>
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<tr>
<td>Owens Valley project</td>
<td>Fish Springs Hills map</td>
<td>25</td>
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<td>Cinder cone map</td>
<td>15</td>
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<td>Cross-sections</td>
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<td>Regional map</td>
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<td>Geologic history</td>
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<td>Field notebook</td>
<td>10</td>
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<td>Unit descriptions</td>
<td>15</td>
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<td>Poleta project</td>
<td>Map and explanation</td>
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<td>Cross-section</td>
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<td>Stratigraphic column</td>
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<tr>
<td>Digitzed map</td>
<td>Owens Valley digital map</td>
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<td>Total</td>
<td>270 pts</td>
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Alcohol policy
This is a dry trip. Drinking will not be tolerated. If you are caught with alcohol at any time on the trip, you will be sent home and will not complete the course. Seriously.

Disability Accommodations
Students with disabilities who wish to set up academic adjustments in this class should give us a copy of their “Confirmation of Eligibility for Academic Adjustments” from the Disability Services Office so we can discuss how adjustments will be implemented. Students without this form should contact Disability Support Services at 509-963-2171 (TDD: 509-963-2143).