GEO 495 Field Camp Course Details

Advanced Field Geology (GEO 495) is designed to train the professionally oriented geology student in field mapping techniques and related skills. Those students who have had at least two years of geology course work including successful completion of physical and historical geology, mineralogy, lithology/introductory petrology and structural geology obtain the best results. A field course is extremely useful and is required of Oregon State University students accepted to the geology program.

Training includes geologic mapping on topographic maps and aerial photographs, preparation of cross-sections, description and measurement of a sedimentary section, short reports or a final report, and regional field trips in the Blue Mountains and Cascade Range. In the final project, student groups work independently and compile a drafted geologic map.

The preliminary schedule for summer 2019 is as follows:

Application Deadline: Friday, March 1, 2019
Pre-registration begins: Sunday, April 14, 2019
Registration Deadline: Sunday, June 16, 2019
Field camp dates: Monday, June 17, 2019 to Saturday, July 13, 2019

Monday, June 17, 2019

- Meet in 108 Wilkinson Hall at 8:00 a.m. for introductions, then load equipment. Please be on time. Personal vehicles are not allowed at camp. On-campus parking should be arranged in advance.
- Depart for Mitchell in Central Oregon by 8:30 a.m. Eat lunch enroute. Activate field station and set up tents after arrival.

Equipment

Many students, through procrastination or financial hardship, have not given sufficient attention to personal equipment and supplies. Inadequate preparation can lead to less-than-full participation in the program. Beg or borrow, if necessary, but come into the program with at least the following items accounted for:

- adequate boots (not tennis shoes)
- warm sleeping bag (not a blanket)
- durable water containers (at least two quarts—no glass)
- rock hammer (not a carpenter's, machinist's or piton hammer)

Brunton transits will be available to check out from the field camp supplies when you arrive in Mitchell. Please treat the transits responsibly. A lost or damaged CEOAS Brunton must be replaced or repaired at the student's expense. If you prefer to bring your own, Azimuth (360°) compass scales are preferred but quadrant scales will do.

Boots

Strong 6" or 8" boots (high enough to fully cover the ankles) with lug soles and heels are required. Because of extensive climbing and the possibility of snow at higher elevations, durable boots are best. Inexpensive boots are inadequate and will not last. Cheap boots actually are more expensive than better quality boots that may
be resoled several times over some years of usage. Because the instructional program is carried out in an isolated area where repairs are impossible, students find it advisable to bring an alternate pair of boots. Please fit boots to accommodate a heavy wool outer sock and a lightweight inner sock. Because you work in three-person teams, the blistered or sore feet of one individual can cripple the team efforts. Therefore, we insist on strong boots, properly fitted and the wearing of two pairs of clean socks. Break in new boots before the summer program.

Supplied as part of program fee:

- small tight-capped plastic dropper bottle (Dilute HC1 will be furnished)
- hardbound field notebook
- set of 24 colored pencils
- pencil sharpener
- 20/40 divisions per inch scale and protractor (W-39)
- 10/50 divisions per inch scale and protractor (W-37)
- 0.5 mm mechanical pencil
- 0.25 mm drafting pen
- 0.50 mm drafting pen
- 0.5 mm HB lead
- box 0.5 mm 5H lead

Outcomes and Assessment

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<tr>
<th>Learning Outcomes</th>
<th>Assessment</th>
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<tr>
<td>Locating and tracing geologic contacts on topo base maps and orthophotos</td>
<td>Five to ten 1-14 day map exercises in which students turn in drafted geologic maps. Instructors grade accuracy of key features.</td>
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<tr>
<td>Mapping structural geology features: faults, folds, inclined bedding,</td>
<td>Two+ cross sections, maps graded for number and accuracy of strike and dips</td>
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<td>metamorphic foliations</td>
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<td>Stratigraphy of sedimentary and volcanic rocks</td>
<td>Students draft a columnar section and describe the volcanic and sedimentary lithology</td>
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<td>Ability to describe outcrops, contact relations, structures and lithologies in</td>
<td>Students collect field data in geologic notebooks in near, well-organized, legible and readable format. Instructors grade notebooks periodically. 10% of grade</td>
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<td>the field</td>
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<tr>
<td>Geomorphology and Quaternary geologic features</td>
<td>Students map landslide deposits and Quaternary gravels on pediment surfaces and along streams. Maps and short write-ups are evaluated.</td>
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<td>Synthetic and integrative skills in geology</td>
<td>Students complete a final map, cross-sections and short report or abstract and lead a one-hour field trip to the group project area at end of 7-10 day exercise where three-person mapping parties each examine their own map area.</td>
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<tr>
<td>Preparation of professional reports,</td>
<td>See above.</td>
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<td>drafted maps and other illustrations</td>
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Evaluation

Because this program is designed for those students who will be going on to graduate studies and careers as professional geologists, a high standard of performance is expected of each participant. The evaluation of each
individual is based on both individual and party efforts and is arrived at by a consensus of the faculty present. The grading system consists of five basic grades: A (exceptional work), B (superior work), C (average work), D (inferior work) and F (failure). Plus and minus (+ and -) grades are used.

**Clothing**

Jackets, pants, shirts, socks, handkerchiefs, towels, etc. Bring sufficient quantity to permit daily changes of socks and underclothes for a full week. An automatic washer and detergents are furnished in the main building. Bring sweaters or jackets as the nights and early mornings can be cold. Complete rain gear (hat, jacket, pants or poncho) has in some years been appropriate. A wide-brim, lightweight hat, and UV protective clothing are recommended.

**Bedding**

Adequate sleeping bag (early in the season night temperatures may go below freezing). Students often in the first weeks of the program, suffer discomfort because of inadequate sleeping bags. An air mattress or pad is recommended; the program supplies lightweight sleeping cots and some pads. A pillow with cases is an aid to comfortable sleeping by many. Large dorm tents are supplied by OSU, but you may wish to bring your own small tent if you desire privacy.

**Miscellaneous**

Flashlight, toilet articles, ointments for skin and lips, camera (optional). Sunglasses are strongly recommended. They protect the eyes when hammering on rocks in addition to protection from desert and high-altitude sunlight. **Please do not plan to wear contact lenses in the field.** Please use conventional glasses (fine desert dust at times can make contacts difficult to use). A spare set of prescription glasses is strongly advised. Portable computers are useful for preparing short field reports and may be brought to camp. Camp policy is for no private vehicles. In exceptional cases, a vehicle is allowed when a student demonstrate a need and instructors grant permission prior to the start of camp.

**Professional Equipment**

The program supplies each student with maps, notebooks, pencils, colored pencils, a protractor/scale, pencil sharpener, and cross section paper. Camp supplies paper and computer printer for reports.

Essential student supplied equipment:

- durable water bottles, at least 3 liters
- rock hammer
- hand lens
- wrist or pocket watch
- a rucksack large enough to carry clipboard, sack lunch, water containers, rain clothing and field samples
- covered clipboard for aerial photographs and maps (8 1/2" x 11" or larger)

Recommended (nice to have but not critical):

- gaiters to keep grass seed out of socks (very highly recommended)
- Cruiser's vest
• heavy belt for Brunton
• holsters on belts help prevent loss of rock hammer
• small first aid kit
• light-weight tape measure
• broad-tipped felt pen for marking samples
• a pocket altimeter—very handy but expensive—some altimeters will be available to be shared by mapping parties
• laptop computer for reports

Pack Light!

The field station is one hour from Prineville, where supplies can be obtained on off days. Please bring essential items only, as space in vehicles and camp is a premium.