

GEOLGY FIELD CAMP – GEOL 481A

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I. INTRODUCTION

Summer Field (GEOL 481a) is about a 5 week course (May 26 – July 2, 2009) with about 4 weeks of field work and 1 week of travel. Camp is held in southwestern Montana where the diverse geology and challenging projects form the capstone of your undergraduate academic career. This course is both intellectually and physically challenging as well as fun and a highlight of your education.

The tentative class schedule is below. It is tentative to allow flexibility for working faster or slower than anticipated, weather, and other opportunities that may present themselves (e.g., a trip to Lewis & Clark Caverns).

The departure and return dates will not change.

II. TENTATIVE SCHEDULE

| | |
|-----------------|--|
| Tuesday, May 26 | 7:00 AM. Depart CSUF for Dillon, MT (camp in National Forest near Beaver, Utah and in National Forest near Pocatello, Idaho) |
| May 28 | Arrive Dillon, MT |
| May 29-June 12 | Field work in Dillon area [Browne]. |
| June 13-15 | Field trip to Yellowstone NP. |
| June 16 - 30 | Field work in Dillon area [Knott]. |
| July 1 | Depart Dillon at 6:00 AM. |
| July 2 | Arrive CSUF in late afternoon. |

III. COSTS

Course fees (\$500) and a grant to the Department from the Associated Student Instructional Related Activities fund covers most of the room and board transportation and materials costs (see below). The course fee and grant do not cover CSUF tuition, extra food, clothing, personal and field gear, including camping equipment and other non-necessities.

Proof of health insurance will be required prior to leaving. Field camp is physically rigorous, Slips and falls are commonplace even for the most experienced person. There is a hospital in Dillon that will meet the minimum medical needs; however, complex illnesses may require transport to a regional hospital that is at least a 1 hour away by car. Therefore, it is prudent for all (student, their family, CSUF, UMW and the professors) that every student have health insurance. Health insurance may be purchased through CSUF.

IV. TRAVEL

All travel is by Department vehicles – no personal vehicles are permitted. The number of students and vehicles require that some students will need to drive. In order to drive a Department vehicle, you must complete CSUF Defensive Driver Training. To drive the Department van, you must complete CSUF Van Safety. Please let us know if you have completed these training classes. Driving a Department vehicle is both a responsibility and a privilege. Adhering to the regulations of the road and CSUF-specific regulations (e.g., no cell phone use of any kind, seatbelt use at all times) is the responsibility of the driver.

Proliferation of invasive grass and weed species is a real problem in Montana. As a result, we will need to wash the vehicles each time we move from one project to another. If necessary, to facilitate and distribute this chore evenly, we may assign vehicle washing duties.

Space in the vehicles is finite. We strongly recommend that you pair up with a fellow student for tents and books. Also, your sleeping bag, needed for the camping, may effectively double as a blanket while at UMW. In this spirit, we recommend that you buy such things as laundry soap in Dillon where many other basic necessities are available; consider bringing a limited (5 day) wardrobe as well. It is an embarrassing necessity that if we cannot fit all the luggage into the vehicles, we must leave items at CSUF.

V. CAMPING AND LODGING

We will camp as we travel to and from Montana and on our field trip to Yellowstone. We will stay in dorm rooms at University of Montana, Western (UMW; 45.20944N; 112.68909W) in Dillon (<http://www.dillonmontanaonline.com>). A double-occupancy dorm room for the time at UMW is paid by the grant and course fee. Single rooms, if available, may be obtained for an additional fee of \$25/week. The additional payment for the single room is payable upon arrival at UMW.

Dorm rooms have a bed, desk, some closet space and internet access. The internet access allows similar content as CSUF, so some sites may be blocked. You need to bring bedding (e.g., sheets, blankets, and pillow). Small refrigerators may be available for an additional fee of \$5/week.

A TV, laundry facilities (coin operated), toilets and showers are “down the hall” and shared with other UMW visitors. You will also have access to the library facilities at UMW for computer use and general reading during regular library hours.

VI. MEALS

Sandwich fixings, snacks and drinks will be available to students during travel days to and from Dillon. Dinners will be cooked by ‘student-cook groups’ at our campgrounds. Of course, you may wish to buy a few additional snacks while on the road from service stations or restaurants so please bring enough funds to cover some meals on all travel days.

When at UMW, breakfast and dinner is served dorm-style. In other words, you walk a buffet line. The food is hot and high calorie- just what you’ll want to keep you energized for field work. Each morning before leaving for the field, you will assemble your lunch (sandwiches made by you, granola bars, fruit, brownies, etc.) in the cafeteria. If you find yourself wanting a break from UMW food, there are places to eat in town at your own expense.

We will take a field trip to Yellowstone midway through camp for some rest and relaxation and to see some great geology. On this trip, we will be camping and cooking our own meals. Budget allowing, these meals are covered.

VII. WHAT TO BRING

Below is a general list of personal and professional gear to bring. Remember that we will be camping a few days, so you will need camping gear for that time.

Some Necessities (not a comprehensive list)

- Towel (may be purchased in Dillon)
- Water proof flip flops (thongs) for the showers
- Bathrobe or other covering for going to and from bathrooms
- Sheets, blanket, pillow (may be purchased in Dillon)
- Books - bring your field manual: *Geology in the Field* by R. R. Compton, John Wiley, 1985, or whatever book you used in Geol 380
- Reference books on stratigraphy, mineralogy, petrology, sedimentology, structural geology, etc. We will bring some, but you might consider getting together to build a library of reference material.
- Computer. A laptop computer is an excellent item to bring for typing reports and connecting to the internet in your room. There is computer access in the UMW library during library hours.

Field Gear (general)

- Well broken-in, sturdy field boots are critical! (You may consider a back-up pair)
- Sneakers and / or sandals
- Bring about 5 days worth of assorted clothes in which you will be comfortable at temperatures ranging from ≤ 30 to ≥ 100 degrees F.
- Hat with a brim and a chin strap
- Gaiters (very important - keeps the arrow grass out of your socks)
- Sunglasses
- Lightweight raingear / wind breaker
- Insect repellent (mosquitoes and ticks ☹)
- Sunscreen (look for combined with insect repellent)
- Moleskin for any blisters
- Light weight personal first aid kit (recommended)

Camping Gear

- Sleeping bag
- Sleeping pad
- Tent and ground cloth (We encourage you to share.)

Other Field Equipment

- Day pack large enough to hold at least 2 liters of water, field gear, windbreaker
- Water bottles (at least 2-liter capacity)
- Rock hammer
- Hand lens (10X or 14X, professional quality)
- 0.5 to 0.3 mm mechanical pencils
- Erasers
- Covered clipboard or map case
- Belt and belt pouch or fanny pack to hold notebook, pencils, drafting tools, etc.
- Stereonet
- Protractor and ruler (Bring extras)
- Drafting tape
- Colored pencils (at least 12)
- Technical drawing pens (Thin 00 to fat 07)
- Medium binder clips, and rubber bands to hold maps

Equipment supplied by CSUF

- Field notebook, with water-resistant pages.

The following items are supplied by CSUF, but will be checked out by each individual from the Department Technician. Each student, therefore, is responsible for returning the equipment in proper working order. The cost of broken or lost equipment will be the responsibility of each student.

- Brunton Compass
- GPS unit
- Radios for communication and safety

VIII. HOW OUR DAYS AND EVENINGS WILL BE SPENT

On field days, we will leave the dorms by 7:30 AM and return between 5 and 6 PM. Times depend on meal service.

You will be expected to work evenings to complete projects on time. The schedule (and related budget) is typical of projects you may experience in your future work as professional geologists. Thus, evening work is required for you to complete the projects in a timely manner. In our experience, reports and maps compiled on the last day are of poorer quality. There will also be the occasional evening lecture.

IX. WHAT YOU SHOULD BE PREPARED TO DO

This is a **CAPSTONE** course. In other words, the techniques and content in this course will challenge your mind and the skills learned from all previous courses you've taken the last several years. For example, you should be able to:

1. Describe and identify rocks, minerals and fossils
2. Describe and identify structures, formations, contact relations, and geomorphic features
3. Interpret relative relations between different rocks and other geologic features in the field
4. Interpret the depositional environments and mode of emplacement geologic features in the field
5. Map effectively and efficiently
6. Synthesize your field work into a geologic report.

X. RULES AND OTHER INFORMATION

In order to promote domestic tranquility, we are obligated to remind you of some common sense rules. You are also reminded to read thoroughly the CSUF Waiver of Liability form that you need to sign before leaving for field camp. These details are necessary because we are a diverse group and we will be spending an inordinate amount of time together. Over the years, situations pertaining to these rules have not arisen, others have become an issue. Field camp is not unlike any other work environment in that it requires you to be safe, respectful and tolerant of your colleagues and community. Violation of any of the rules below or failure to adhere to instructions of the professors, teaching assistant or UMW personnel will result in a grade of F in the course and you will be transported to the Dillon bus terminal to purchase a ticket home.

- Safety is a paramount concern. Any actions considered to endanger the health, safety and well-being of you, another student or person is of grave concern to us and will not be allowed. We will be driving several thousand miles and then working in difficult terrain under a variety of circumstances and doing your work as safely as possible should be on your mind at all times.
- You may encounter wild animals (e.g., moose, coyotes, skunks) who are generally shy. You should treat them appropriately, do not provoke them and avoid them if possible.
- We will be working, in part, on private property occupied by domestic animals and historic structures. Try and avoid these animals whenever possible and do not provoke them under any circumstances. Under no

circumstances should you open a gate and not close that gate or destroy or alter a fence or any other property.

- Smoking should be done in designated areas only. Southwestern Montana is open grassland and wild fires destroy property and feed for animals. There is no smoking in CSUF vehicles at any time.
- Illegal drugs and firearms of any kind are not allowed.
- Alcohol is not permitted on the UMW campus, Department vehicles or in the field at any time. This supersedes the UMW rules.
- Unprofessional behavior will not be tolerated. We will be representing CSUF, and you are expected to treat your peers, the surroundings, and the communities and people we visit with respect. This includes loud and unruly behavior at UMW. We don't want to stifle fun, but please remember that we are a diverse group and we will be encountering many other people during the course of the class.
- There WILL be evening lectures. You are expected to enthusiastically participate.
- For safety reasons and to encourage discussion of what you see and ideas on its formation, you will work in small groups (2-3 per group). You may discuss assignments and argue about what you see in the field, but the work you turn in must be your own. Within your work groups, you cannot assign each other 'full time' duties, such as one person finding location on map and another measuring strike and dip. However, it is redundant to have three people make the same measurement, so you may take turns splitting up the duties as long as everyone does the work. Beware: you should not simply rely on your partner's measurements and locations - always take a look and don't be afraid to say 'are you sure it dips east?'. Everyone should put the information on their own map as the data are collected. You cannot have one person in the group map and the other members of the group copy the information in the evening. You will need to have all these skills for the Final Exam where you will not be allowed to communicate with fellow students, so master the skills now.
- Late work will not be accepted.
- You should be familiar with the UMW rules and regulations (see below).

XI. VISITOR RULES

- Visitors are allowed at Field Camp as long as you follow these rules:
 1. Visitors are NOT permitted to sleep in the UMW Dormitory- they must pay for a hotel room in Dillon
 2. Visitors are NOT permitted to eat at the UMW cafeteria- they must pay for your own food
 3. Visitors are NOT permitted to accompany students in the field during mapping exercises
 4. Visitors are NOT permitted to ride in University vehicles
- Visitors and students must remember that the Field Camp student's priorities are first and foremost to the course, which will keep you very busy. Therefore, visitors are encouraged to schedule their stays during rest days rather than work days

• **XI. GRADING**

| Project # | Percentage of Grade |
|--|----------------------------|
| Project 1 – Intrusive & Contact Metamorphism | 15 |
| Project 2 – Metamorphic Rocks | 10 |
| Project 3 – Quaternary/Surficial Mapping | 5 |
| Project 4 – Volcaniclastic Rocks + Hazard Assessment | 20 |
| Project 5 – Paleozoic Sedimentary Rocks | 15 |
| Project 6 – Complexly Faulted Structures | 20 |
| Final Exam | 15 |

By using the accumulated points and percentage everyone may strive for and earn an A. **The Final Exam** will consist mapping a designated area by yourself. You shall not talk with other students and you shall not look at their map. **Reports** will be written for each project. Reports will be graded for their completeness, grammar and expression. Projects grades include such considerations as effort in field, field techniques (keeping good field notes, putting information on maps, etc), consistent performance and improvement based on previous assignments, professionalism (work turned in on time, neatness, completeness, etc), and following instructions.

If you have a disability that requires special conditions please let us know.

Attendance

Attendance is required to complete activities in this course. Field trip attendance is mandatory. Not attending a field day without a valid reason will result in loss of points.

Academic Dishonesty Policy

You will be working in groups/teams on the various projects – mainly for safety reasons and so that you can discuss things in the field. However, each student is required to do his/her own work (maps, notes, reports, etc). Copying each other's work is cheating. Possession of any maps not provided by the instructors will result in an F in the class and immediate dismissal from the class.

Students who violate university standards of academic integrity are subject to disciplinary sanctions, which may include failure in the course and suspension from the university. Since dishonesty in any form harms the individual, other students, and the university, policies on academic integrity will be strictly enforced. We expect that you will familiarize yourself with the academic integrity guidelines found in the current student handbook. (<http://www.fullerton.edu/deanofstudents/Judicial/index.htm>). All incidents will be reported to the Division of Student Affairs.

We look forward to an exhilarating, exciting, and adventurous 'camp'.

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Syllabus – GEOL 481A – Summer Field 2009

Below is a tentative schedule for our stay in Dillon May- July 2009

| SUN | MON | TUES | WEDS | THURS | FRI | SAT |
|--|---|--|---|---|---|--|
| 24 | 25 | 26 Depart CSUF 7AM (Camp near Beaver, UT) | 27 Driving... (Camp near Pocatello, ID) | 28 Arrive Dillon check-in; Evening lecture | 29 Project 1: Mapping intrusive & contact metamorphism | 30 Project 1: continued |
| 31 FIELD or OFFICE DAY Map and Report #1 DUE 6PM | 1 Project 2: Mapping Metamorphic and Intrusive Rocks | 2 Project 2: Continued | 3 FIELD or OFFICE DAY Map and Report #2 DUE 6PM | 4 Project 3: Quaternary glacial deposits | 5 Project 3: Continued Map and Report #3 DUE 8PM | 6 DAY OFF |
| 7 Project 4: Faulted volcaniclastic and volcanic rocks | 8 Project 4: Continued | 9 Project 4: Continued | 10 Project 4: Continued <i>DB, SM, JK arrive</i> | 11 Project 4: Continued <i>DB, SM, JK Tour</i> | 12 FIELD or OFFICE DAY Map and Report #4 DUE 5PM <i>DB & SM depart</i> | 13 Drive to Yellowstone (Camp near park) |
| 14 Yellowstone (Camp near Park) | 15 Drive back to Dillon <i>BB depart</i> | 16 Project 5: Mapping and measured section | 17 Project 5: Continued | 18 Project 5: Continued | 19 FIELD/OFFICE DAY Map, Section and Report #5 DUE 6PM | 20 DAY OFF |
| 21 Project 6: Complex fold and thrust belt | 22 Project 6: Continued | 23 Project 6: Continued | 24 Project 6: Continued | 25 Project 6: Continued | 26 FIELD/OFFICE DAY Map and Report #6 DUE 6PM | 27 DAY OFF |
| 28 FINAL MAPPING EXAM | 29 DAY OFF/ Packing & Final check- out paperwork | 30 Depart Dillon 7AM (Hotel in Mesquite, NV) | 1 Driving... (Arrive at CSUF by 4PM) | 2 | 3 | 4 |

Campground ‘KITCHEN’ Groups

Kitchen Groups are responsible for preparing, cooking, and cleaning-up after meals. Examples include:

| <u>Breakfast</u> | <u>Lunch</u> | <u>Dinner</u> |
|---|--|--|
| Making coffee or tea; making oatmeal; putting spoons and bowls on table; arranging milk, cereal and other breakfast items so they are readily accessible; washing all utensils/dishes and packing everything back into coolers and food & camping containers for the vehicles | Bringing coolers and food containers from the vehicles to eating area; arranging bread, meat, cheese, fruit/vegetables, chips, drinks and other lunch items; washing all utensils/dishes and packing everything back into coolers and food & camping containers for the vehicles | Making and arranging dinner meals of your choosing (e.g., tacos, pasta, salads, burgers) so they are readily accessible for group; washing all utensils/dishes and packing everything back into coolers and food & camping containers for the vehicles |

| DATE & Location | Duties | GROUP |
|---|-----------------------------------|---------------------------------|
| 5/26 CSUF → Mahogany Cove Campground (near Beaver, UT) | Set-up and clean-up lunches | Monarrez, Liodas, McDermit |
| | Prepare and clean-up dinner | Sendziak, Nikjoo, Lee, Corcoran |
| 5/27 Mahogany Cove → Scout Mountain Campground (near Pocatello, ID) | Prepare and clean-up breakfast | Keffer, McCoy, Kuhn |
| | Set-up and clean-up lunch | Dailey, Nunley, Miramontes |
| | Prepare and clean-up dinner | Chilton, Sandoval, Roman |
| 5/28 Scout Mountain → Dillon, MT | Prepare and clean-up breakfast | Sendziak, Nikjoo, Lee, Corcoran |
| | Set-up and clean-up lunch | Chilton, Sandoval, Roman |
| 6/13 Dillon, MT → Yellowstone NP | Set-up and clean-up lunch | Dailey, Nunley, Miramontes |
| | Prepare and clean-up dinner | Monarrez, Liodas, McDermit |
| 6/14 Yellowstone NP | Prepare and clean-up breakfast | Chilton, Sandoval, Roman |
| | Set-up and clean-up lunch | Monarrez, Liodas, McDermit |
| | Prepare and clean-up dinner | Keffer, McCoy, Kuhn |
| 6/15 Yellowstone NP → Dillon, MT | Prepare and clean-up breakfast | Chilton, Sandoval, Roman |
| | Set-up and clean-up lunch | Sendziak, Nikjoo, Lee, Corcoran |
| 6/30 Dillon, MT → Mesquite, NV (Hotel) | Set-up and clean-up lunch | Keffer, McCoy, Kuhn |
| 6/31 Mesquite, NV → CSUF | Set-up and clean-up lunch | Dailey, Nunley, Miramontes |

Applicable University of Montana Western Regulations

IX. UNIVERSITY REGULATIONS:

Purchaser is required to adhere to all applicable federal and state anti-discrimination laws regarding all activities subject to this Agreement. In addition, Purchaser agrees to provide at Purchaser expense, reasonable accommodations for persons with disabilities who are qualified to participate in Purchaser activities and require any such accommodations as a condition for participation. Purchaser further agrees to notify the University immediately about any disability accommodation requests received by Purchaser from an actual or prospective participant in Purchaser activities. Purchaser further agrees to prohibit all forms of unlawful sexual, racial or other harassment by anyone participating in Purchaser activities. In addition, Purchaser shall adhere to all University policies, regulations, guidelines, and all local, state and federal laws concerning health, safety and public order. Failure to comply with these regulations may result in forfeiture of the privilege of using University facilities and services, or termination of this agreement pursuant to XII hereof. University regulations include but are not limited to the following in University buildings and on University property.

1. Shared rooms are reserved for married couples, or occupants of the same sex.
2. All individuals will abide by Montana law, federal law and University regulations regarding intoxicants, narcotics and drugs. Alcohol is allowed only within the individual room. Alcohol cannot be consumed in corridors, lobbies, lounges, other buildings on campus or on campus property.
3. Fireworks, explosives and highly flammable materials are not allowed within the residence halls or buildings or on the grounds.
4. Bicycles are not allowed in student rooms, study rooms or stairwells. They must be parked at locations specifically for bicycles.
5. Animals are not allowed in any location in the residence halls or dining rooms.
6. Hot plates or similar appliances are not permitted in rooms nor is any type of cooking allowed in any room.
7. Remodeling or renovating of rooms or furniture, tampering with the electrical or mechanical fixtures or phones in the rooms. Placement of antennas for radios, television, etc, out of the windows, removal of or addition of furniture without arrangement with the University representative is not permitted.
8. Attaching any object to any University premise by nail screw, glue, or alteration of the premises in any manner whatsoever without the prior permission of appropriate University representative is not permitted.
9. Parking in the service or fire lanes adjacent to the residence halls is not allowed.
10. Tampering with or removal of windows or window screens from any part of any buildings is not allowed.
11. Tampering with the fire system or fire fighting equipment is not allowed.
12. Removal of lounge or common area furniture into individual rooms is not allowed without prior permission from appropriate University representative.
13. The use and unlocking of common area doors which are to be continuously locked or locked at specified periods of time is not allowed.
14. Solicitation in any form is not permitted.

XII. THE UNIVERSITY OF MONTANA-WESTERN RIGHTS:

The University may exercise the following rights:

1. To enter any room or building for the purpose of inspection, repair or emergency.
2. To reassign residents within a residence hall, after timely notification, in order to accomplish necessary repairs and renovation to the building.
3. To revoke the campus privilege including residency in or utilization of any of its buildings of any occupant whose conduct, solely in the Universities opinion, become injurious or potentially injurious to the academic community.