Geology 192: Geology of the Pacific Northwest and the Northern Rockies

Summer Field Studies

June 17-July 1, 2017

**Welcome to the 2017 geology field studies expedition!** This trip is going to be a two-week camping exploration of the Pacific Northwest and northern Rocky Mountains, with stops at Yellowstone, Grand Tetons, and Glacier National Parks, as well as many other state and federal parks throughout Oregon, Washington, Montana, Wyoming and Nevada. I am looking forward to the trip and I hope you are too. Please read through the following information carefully, and meet the appropriate deadlines in a timely fashion.

**Contact Information:**

* **Instructor:** Garry Hayes**,** Science Community Center 336, Phone: (209) 575-6294
* <http://hayesg.faculty.mjc.edu/GeologyPacificNorthwest.html> and <https://www.facebook.com/groups/185168445318910/?ref=bookmarks>
* E-mail: hayesg@mjc.edu

**Academics:** Geology 192 is a 3 unit academic course, and you will be responsible for several things to earn a grade:

* Submitting complete lecture notes
* Submitting the trip workbook
* Occasional quizzes during the trip
* Presentation of at least one topic during the trip

The presentations will be chosen from the list provided in this announcement. The purpose is to give you an in-depth feeling for at least one of the stops we will make on the trip, and giving you the experience of preparing and giving presentations of scientific topics. You might be nervous about giving a presentation, but remember that everyone else on the trip will be doing likewise, and that the atmosphere will be one of **mutual support**. These presentations should be ready prior to the trip: references, diagrams and duplicating are available through my office. I will be glad to assist you in any way I can. Topics can be chosen at the meeting of April 10 (see below).

**Text:** Alt and Hyndman, **Northwest Exposures, A Geologic Story of the Northwest** (optional)

**Comestibles**: We will provide all meals under the direction of our food czar, and everyone will contribute to the cooking, cleaning and packing. Please let us know if you have any food allergies.

**Facilities and Conditions**: A quick look at the following itinerary will show that our nightly camp facilities will range from very cushy (with showers and laundry) to relatively primitive (vault toilets and no electrical plugs). There will be a great deal of driving, but the vans are air-conditioned and are comfortable (within limits). Possible weather conditions will range from very hot to downright cold. Thunderstorms and even snow might be a possibility at times. Please be prepared to operate comfortably under any of the above conditions.

**Community and Collegiality**: It is a long trip, and sometimes tempers may rise, or feelings get hurt. Please maintain some perspective at all times, and think of the morale of the group before you criticize anyone. Always consider how your actions will affect others. **Alcohol and drugs** are most disruptive and absolutely **will not be tolerated**. Abuse of this rule will result in a bus ride home at your expense, and an “F” in the course.

**Fee:** $800, which includes all food, transportation, entrance and camping fees. Fee does not include class registration. Fees need to be paid in the MJC Business Office in the Admissions Office by **Friday,** **June 1**.

 **Timetable**

**Monday, April 10**: Organizational Meeting, 7:00 PM in SCC 326. **Purpose**: Trip organization, selection of topics and review of equipment needs.

**Friday, June 2**: BBQ and gathering, location to be arranged. **Purpose**: final arrangements, assistance with logistics, social introductions, some fun.

**Thursday, June 15 and Friday, June 16**: Final shopping and equipment preparation Thursday. Bring gear between 2 and 4 pm Friday to the northwest corner of the Science Community Center near the pendulum tower for loading in vans.

**Saturday, June 17, 6:30 AM**: Leave from Science Community Center Building Parking Lot (near the Pendulum Tower). Arrange to be dropped off, or contact Campus Security PRIOR to the trip about parking on campus (not the best of choices, however).

**Saturday, July 1**: arrive home at MJC approximately 5:00 PM

 **Tentative Itinerary**

**Saturday, June 17:** MJC to Lava Beds National Monument

**Stops**: Mt. Shasta Ski Bowl

Lava Beds National Monument

**Camp**: Lava Beds Group Campground

**Facilities**: Flush toilets, fire ring

**Conditions**: Moderately warm

**Emergency phone**: Lava Beds National Monument (530) 667-8100

**Sunday, June 18:** Lava Beds to Tumalo State Park, Oregon

**Stops**: Crater Lake National Park (depending on snow conditions)

Newberry Crater, Lava Butte

Lava River Cave, Lava Cast Forest

**Camp**: Tumalo State Park near Bend, Oregon

**Facilities**: Flush toilets, fishing

**Conditions**: Moderate (high elevation forest)

**Emergency phone**: 1-800-452-5687

**Monday, June 19:** Tumalo State Park to Seaquest State Park, Washington

**Stops**: Smith Rock State Park

Mt. Hood

Columbia River Gorge, Beacon Rock

**Camp**: Seaquest State Park, Washington

**Facilities**: Flush Toilets, showers, fishing

**Conditions**: Relatively warm (lower elevation forest)

**Emergency phone**: (253) 274-8633

**Tuesday, June 20:** Seaquest State Park to Ginkgo Wanapum State Park

**Stops**: Mt. St. Helens and David Johnston Ridge

Mt. Rainier National Park (tentative, depending on snow conditions)

**Camp**: Ginkgo Wanapum State Park

**Facilities**: Flush Toilets, swimming, fishing

**Conditions**: Warm, open (windy) arid country along the Columbia River

**Emergency phone**: (509) 856-2700

**Wednesday, June 21:** Wanapum State Park to Bowl and Pitcher State Park, Spokane, WA

**Stops**: Grand Coulee Dam

 Soap Lake Caves

 Dry Falls State Park

Channeled Scablands

**Camp**: Bowl and Pitcher State Park group campsite in Riverside State Park, Spokane, WA

**Facilities**: Flush toilets, showers, and laundry

**Conditions**: Cool, forested area

**Emergency phone**: 509-465-5064

**Thursday, June 22:** Bowl and Pitcher State Park to Glacier National Park

**Stops**: Camas Prairie, Lake Missoula evidence

Lake McDonald

Going to the Sun Highway

St. Mary Lake

**Camp**: St. Mary Lake Group Campground

**Facilities**: Flush Toilets

**Conditions**: Warm, open forested country, **Bear Protocol**

**Emergency phone**: (406) 888-7800

**Friday, June 23:** Exploring Glacier National Park

**Stops**: Glacier Hike

Chief Mountain (Lewis Overthrust)

**Camp**: Same as previous night, **Bear Protocol**

**Saturday, June 24:** Glacier National Park to Bozeman, MT area

**Stops**: Choteau- Dinosaur Museum

Lewis and Clark Caverns State Park

Museum of the Rockies, Bozeman, MT

**Camp**: Bozeman KOA **(tentative)**

**Facilities**: Showers, flush toilets and laundry

**Conditions**: Moderate

**Emergency phone**:

**Sunday, June 25:** Bozeman area to Yellowstone National Park

**Stops**: Stillwater Complex

Beartooth Mtns. Highway (the oldest rocks)

Mammoth Hot Springs

Grand Canyon of the Yellowstone

**Camp**: Madison Campground, Yellowstone National Park

**Facilities**: Flush Toilets

**Conditions**: Cool, forest setting, **Bear Protocol**

**Emergency phone**: (307) 344-7381

**Monday, June 26:** Exploring Yellowstone National Park

**Stops**: Upper and Lower Geyser Basins

Norris Geyser Basin

**Camp**: Same as previous night, **Bear Protocol**

**Tuesday, June 27:** Yellowstone to Grand Tetons National Park

**Stops**: Jenny Lake Glacier and Fault Hike

Snake River Terraces

**Camp**: Colter Bay Group Campground

**Facilities**: Flush toilets, swimming, laundry

**Conditions**: Moderate, forested setting, **Bear Protocol**

**Emergency phone**: (307) 739-3600

**Wednesday, June 28:** Exploring Grand Tetons National Park

**Stops**: Jackson Hole

Gros Ventre Slide

Lookout Mountain

**Camp**: Colter Bay Group Campground

**Facilities**: Flush toilets, swimming, and laundry

**Conditions**: Moderate, forested setting, **Bear Protocol**

**Emergency phone**: (307) 739-3600

**Thursday, June 29:** Grand Tetons to Angel Lake, Nevada

**Stops**: Jackson Hole

Afton Overthrust Belt

East Humboldt Range and Metamorphic Core Complexes

**Camp**: Angel Lake

**Facilities**: pit toilets and water

**Conditions**: Cool (high elevation)

**Emergency phone**:

**Friday, June 30:** Angel Lake to Berlin/Ichthyosaur State Park

**Stops**: Ruby Mountains – Lamoille Canyon

Carlin Gold Mining District

1958 Fairview Peak Earthquake Scarps

Berlin-Ichthyosaur State Park

**Camp**: Berlin-Ichthyosaur State Park

**Facilities**: water, pit toilets

**Conditions**: warm, nice sunsets

**Emergency phone**: County Sheriffs Office, Gabbs, NV

**Saturday, July 1:** Berlin/Ichthyosaur to Home (at approximately 5:00 PM)

**Stops**: Mono Lake

Tioga Pass

Lembert Dome or Olmsted Point, Yosemite National Park

**Camp**: Home

**Facilities**: Depends on where you live

**Conditions**: Depends on who was responsible for housework

**Emergency phone**: Don’t call me!

**Lecture Topics:**

Select one or two of the topics below that you are interested in presenting on the trip. We will choose topics at the first organizational meeting. You will be responsible for one presentation. Preparations should be complete prior to leaving on the trip. Available resources in the geology department include duplicating, portable chalkboard, and poster paper. A list of library references in available in my office, as well as a folder of information on each area listed below.

 Introduction to the Cascades Province

 Geology of Mt. Shasta

 Lava Beds National Monument

\_\_\_ Crater Lake National Park

 Newberry National Volcanic Monument

\_\_\_ Smith Rock State Park, Oregon

 Beacon Rock and the Columbia River Gorge

 Mt. St. Helens National Volcanic Monument

 Ginkgo Petrified Forest

 Grand Coulee and the Channeled Scablands

 Camas Prairie and ancestral Missoula Lake

 Glacier National Park (Stratigraphy)

 Glacier National Park (Glaciers and the Ice Ages)

 Geology of the High Plains and Continental Glaciation

 The Overthrust Belt in the Northern Rocky Mountains (Gibson Reservoir)

 Dinosaurs of Montana (Choteau area and Museum of the Rockies)

 Stillwater Complex

 Yellowstone National Park (geysers and geothermal features)

 Yellowstone Caldera

\_\_\_ Greater Yellowstone ecosystem

 Grand Tetons National Park

\_\_\_ Gros Ventre Avalanche

 Basin and Range Province

 Metamorphic Core Complexes (Ruby Mtns or Angel Lake, NV)

 Berlin-Ichthyosaur State Park

 Mono Lake, Pleistocene Ice Ages, Pluvial Lakes

 Yosemite National Park and the Mesozoic Convergent Margin

If you have some special expertise in some other discipline that would make for a good project, please offer your suggestions:

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 .

Name: .

**Field Trip Emergency Information:**

Name: .

Address: Zip: .

Phone (home): work: .

Who do we notify in case of emergency?: .

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Medical Allergies: .

Medications: (those you are taking, and those to avoid) .

Date of Last Tetanus Shot: .

Special Medical Problems: .

**Suggested Equipment List**

**"Lodging" Equipment:**

Sleeping Bag Tent (small, compact, may share)

Ground Cloth Small Beach Chair (should fold flat)

Day Pack Ensolite Pad or Equivalent (Cots o.k.)

Duffle Bag or Suitcase (backpacks not recommended)

**3‑4 Days supply of clothing:**

Warm Jacket Socks Long Sleeve Shirt

Long Pants Short Pants T‑Shirts and Clean 'undies'

Hiking boots or shoes Swimsuit Thongs or tennis shoes

**Academic Equipment:**

Illustration Materials (pens, pencils, colored pencils or art supplies)

Paper (8 1/2" x 11") (lots of it!)

Sturdy notebook

Small handlens (On a cord, it can go around your neck)

Rock Hammer (optional)

Collection bags

**Personal Comfort and Survival:**

Canteen(s) ‑ 1/2 gallon capacity Pocket Knife

Flashlight, extra batteries, bulb Sunscreen (high SPF) ‑ Required

Pillow, blanket (optional) Camera

Small Ice Chest (for drinks, etc.) Poncho or Rainsuit

Broad‑rimmed Hat (absolutely required) Bug repellent

Small First Aid Kit (bandages, antibiotics, moleskin)

**Personal Items**

Soap Towel and wash rag Toothbrush and paste Toilet Paper

Shampoo Lip balm Personal hygiene Items Tissues

(Remember that you will be living in close quarters with other people for two weeks!)

**Eating utensils:**

 Knife, fork, spoon

 Coffee/drink mug (unbreakable)

 Dinner Plate

 Bowl

**Spending Money** (for showers, laundry, souvenirs, native American jewelry, books, etc.)