

Geology 192:– Geology of the Pacific Northwest and Northern Rocky Mountains

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Introduction:

Geology 192 is a two-week long summer field studies program that takes students to the important geological localities found in the western United States. We camp at spectacular parks and monuments, and hike to some of the most important geologic sites in the history of geological studies. We often teach the course in conjunction with students taking Anthropology 174, which is a unique dynamic that enriches the experience of everyone taking the courses.

Course Orientation:

We will hold at least one orientation meeting and another pre-trip meeting prior to departure (see the itinerary for times and places). You will need to attend these meetings as part of your course content. We will discuss important aspects of the course (assignments, pre-trip preparation), and the trip itself. At the first meeting you will choose the topic of your presentation and paper so that you can begin doing research immediately. I am available prior to leaving on the trip so that we can discuss your topics and I can help with any information you may need!

Course Requirements:

This is a 3 unit class, and much of your learning will occur while in the field. However, before we leave, you will need to get involved in choosing a topic that will be all yours! See Presentation information below. To earn a grade in this class, you will need to:

1. Attend orientation (or communicate with me independently) and wrap-up meeting(s).
2. Prepare and present a topic of interest to the class on the trip.
3. Participate in class lectures during the trip and take complete and detailed notes during these lectures. Keep a journal/field notes while at each stop during the trip (museum information, etc).
4. Complete regular and pop-quizzes during the trip.
5. Complete the provided worksheet that constitutes a take home final. It will be submitted a week after the trip.

Textbooks and Materials:

There are no required books to purchase...you will be given readings to complete along the way. Please bring along a journal type notebook for keeping lecture and field notes during the trip (a self-contained book of paper, not pages in a binder—these might blow away!).

Fees:

This is a three unit course, so a per-unit fee applies. There is a trip fee of \$800 which covers transportation, food, camp fees, entry fees and teaching materials. It is paid in the MJC Business Office in the Student Center on East Campus. Please pay as soon as possible

Presentation:

No, it is not intended to be torture...it is intended so that you OWN a piece of the trip... During the orientation meeting(s), you will choose from a topic list a region and topic that you would like to research and prepare a presentation on for the rest of the class. When we stop at the location where your topic is appropriate, you will get to help me give the lecture! Details on this assignment are in a separate handout.

Quizzes:

During the course of the trip you will have regular quizzes on the regions we visit as well as the general information you should all be prepared with before we leave (for instance, in order to eat one night you may be asked to recite the names of the formations found in the Grand Canyon!).

Field and Lecture Notes:

At each stop, we will have a lecture on the region and what you should be learning while visiting. After my lecture, the person giving the presentation will also talk about the area. For each of these lectures, you should take detailed notes for your reference (paper, presentation), as part of your complete packet to be turned in at the end of the trip, and since these topics will be addressed in future quizzes! In addition to the actual lecture, you should get used to taking your field notebook with you as you travel around the parks and take notes on the things that you see and learn. These will help you in all ways presented above as well!

Important Information about the Trip!

This trip is not just a pleasant summer vacation...it is for you to learn as well! This is not to say it will not be fun! As mentioned above, you will need to have a good attitude, be able to get along with others, and avoid jeopardizing yourself or others by indulging in alcohol or drugs (this will NOT be tolerated)! This is a fairly small group, but there are bound to be some people you do not connect with. Please contact ME if any issues arise rather than dealing with it yourself. Thanks! We will be setting up, cleaning up, and preparing food as a group, with assigned duties performed by a couple of students each day. Please be prepared to pitch in whenever necessary! If you have any dietary requirements or allergies, please let me know ASAP. We cannot accommodate all food preferences, but if you are medically in need, we will certainly do our best! All food will be provided, but we expect the assistance of everyone in preparing meals and cleaning up afterwards. Breakfasts will be simple, with a selection of cereals, oatmeal, rolls and bagels, continental style. Lunches will be prepared at breakfast time; cheese, cold cuts, peanut butter and jelly, and condiments will be available for sandwich-making, and a big variety of snack foods (nuts, GORP, dried fruits, fresh fruit) will be laid out. Someone will probably be designated as the "barista."

Student Learning Objectives for Geology 192

Upon successful completion of the course, the student will be able to:

- a. explain the origin and nature of Cascade-style volcanism and the associated hazards faced by populations in the region.
- b. describe the Cascadia subduction zone and the tectonic processes active in the Coast Ranges of Oregon, Washington and British Columbia.
- c. interpret the rocks and structure in order to describe the origin of the accreted terranes of North Cascades National Park and the British Columbia Coast Mountains.
- d. describe the origin of the basalt flows of the Columbia Plateau and interpret the evidence for ice age "megafloods" of the Channeled Scablands of eastern Washington.
- e. explain the origin of the Yellowstone "Hot Spot" in Wyoming and Idaho and analyze field evidence for massive rhyolite caldera eruptions in the region as well as identifying the origin of geothermal features in Yellowstone National Park.
- f. identify the type of faulting that produced the mountains of Grand Tetons National Park, and analyze the metamorphic rocks found there in order to infer the earliest geological history of the western Cordillera.
- g. identify the sedimentary rocks and structures of the Belt-Purcell Supergroup as exposed in Glacier and Waterton National Parks in order to interpret the Proterozoic sedimentary environments in which the rocks formed.
- h. identify the types of faulting and related structures in the foreland fold-and-thrust belt of the northern Rocky Mountains as exposed in Banff, Jasper and Glacier National Parks, and describe the origin of the mountain system.