GEO 143 Pacific NW Rocks & Minerals
Final Study Guide

Approximately half of the Exam will be from the first 2/3 of the class (the Mid Term exams). The other approximate half of the exam is covered in the material below.

Mt. Saint Helens

What types of volcanoes are in the Cascades? What relative Silica content (high, med, or low) are associated with each of these types of volcanoes? Why does the Silica content control the behavior of lava flow? Why does the Silica content control the shape of volcanoes? What type of rock is associated with the different levels of Silica (four types of rock, rank them from low to high Si %)? What is the timeline of events that led to the eruption of Mt. Saint Helens? What happened during and after the eruption of Mt. Saint Helens? How were the different lakes formed around Mt. Saint Helens? Where do we find volcanoes? Why are volcanoes found in these places? What are some volcanoes associated with the Cascadia subduction zone? Which Cascade volcanoes erupt more frequently than others? What are some hazards associated with volcanic eruptions? What controls the type of volcanic eruption, the shape of volcano, and the way that lava flows? Which lava/rock type is associated with which of these volcanoes: fissure flow, shield volcano, stratovolcano, lava dome, caldera?

Columbia River Basalts

What was the geologic event that initiated the eruption of the CRBs? What is the time span for the CRB eruptions? Where is the source of these lava flows? Where did they flow to? What causes columnar jointing? What are the processes that create the stratigraphy of a flood basalt (there are 5 parts, from bottom to top: pillow basalt, lower colonnade, entablature, upper colonnade, vesicular basalt)? Could you label these parts if you saw a drawing of a flood basalt? Why do we think there are pillow basalts in the CRBs? What is K/Ar age control? What is the basis for this age control method?

Economic Geology in Oregon

What are some of the mineral resources in Oregon? Where would you look for each of these? What are the two types of gold/silver deposits? What is the primary way that aggregate is classified? What is sorting? What is the difference between rounded and angular? What makes a particle rounded? Where are placers found (name two places)? What is dredge mining? What is suction mining?

Topographic and Geologic Maps

What is a geologic Formation (what are the two parts of this definition)? What is a geologic contact? What is the strike? What is the dip? What is an anticline/antiform? What is a syncline/synform? Can you identify the different symbols for strike and dip (including vertical and horizontal beds), anticline/antiform, and syncline/synform? What is latitude? What is longitude? How many minutes are in a degree? How many seconds are in a minute? What is magnetic declination? What is magnetic North? What is map scale? What is the relative fraction scale? What is an elevation contour? What is the contour interval? What is the rule of Vs when looking at elevation contours? What is relief? What is gradient? Could you calculate these? Could you prepare a topographic cross-section given a topographic map?