

Luckiamute Watershed – Field Geomorphology Module

Checklist of Class Materials

Note: Please organize your work in the following order.

- (1) Introduction to Topographic Maps Exercise (Monmouth Quad)
- (2) Strahler Stream Ordering Exercise
- (3) GIS Introduction to Raster / Vector Exercise
- (4) Field Hydrology Exercise - Data and Methodology for Measuring Stream Discharge at Helmick Park
- (5) Field Hydrology Exercise Part 2 - Determination of River Discharge and Recurrence Interval
- (6) In-Class GIS Exercises
 - "Luckiamute GIS Exercise / Precipitation Project"
 - "Surficial Geology Project"
 - "GIS Background Exercise - Fieldtrip to Lewisburg Area"
 - "GIS Background Exercise - Fieldtrip to Black Rock / Falls City Area"
- (7) Photocopied / Organized Sections of Week 1 Field Notebook
 - (A) Helmick State Park Field Trip
 - Field Hydrologic Measurements of Stream Discharge (Day 1)
 - Alluvial Sediment Coring and Grain Size Analysis (Day 1)
 - Techniques in Calculation of Stream Discharge and Recurrence Interval (Day 1)
 - Landforms: channel, terraces, floodplains, and Spencer Formation hillslopes (Day 2)
 - (B) Lewisburg / Sulfer Springs Field Trip (Day 2)
 - Coast Range geology / tectonic setting (accretionary tectonics)
 - Bedrock geology of the Siletz River Volcanics
 - pillow basalts
 - regolith development
 - colluvium vs. residuum
 - landforms: side slopes, hollows, channels, floodplains
 - Sulfer Springs landslide site
 - (system feedback, geomorphic process-response, landslides, road construction / anthropogenic influences, hollow hydrologic processes, triggering mechanisms for shallow landslides, forest canopy impacts, faunal response / beaver dams, stream hydrology response / change in gradient, landslide constriction of valley)
 - (C) Black Rock / Upper Luckiamute Fieldtrip (Day 3)
 - Bedrock channel systems, knickpoints / water falls, knickpoint migration, "tools", erosional processes in bedrock channel systems
 - Stream equilibrium, sediment load vs. stream power, under capacity vs. over capacity channel systems
 - Stream discharge measurement techniques
 - Gravel clast measurement techniques
 - Rudimentary geomorphic mapping (channels, floodplains, terraces, hillslopes)
 - Gravel clast fabric and texture (rounding / angularity, colluvium vs. alluvium)
 - Gravel clast size / shape measurement techniques
 - Bedrock geology of the Yamhill sedimentary rocks
 - spheroidal weathering patterns in residuum of Tertiary intrusive rocks
 - residuum
 - relative geomorphic dating, terrace development, gravel clast weathering rinds
 - summary of relative geomorphic variation between headwater-mouth of the Luckiamute watershed