

## **NS481/581 Week 1 Geomorphology Module**

### **Checklist of Class Materials Due Monday July 2, 2001 8:00 AM**

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