

**GS407/507 River Environments of Oregon
Instructions for Final Report**

NOTE: The Final Report is due in my mailbox in the Natural Science Office on Wed. Sept 1, 4:00 PM.

Final Report: Field notes, observations, exercises, results, interpretations, maps, and photo logs will be compiled into a final field trip report. The field trip report will be organized according to the following outline format:

- I. Introduction
 - a. General overview of course and field trip
 - i. Figure: Road Map with Trip Stops
 - b. Goals and Objectives of Course and Field Trip
- II. Regional Geologic Setting of High Lava Plains – Deschutes/Columbia Plateau
 - a. Written summary of Orr and Orr Readings

III. Field Stop Description (repeat this section for each stop, sequentially on the trip)

Note: stops to include, in the following order: 1-1 N. Santiam River, 1-2 Detroit Dam, 1-3 Diamicton Cut on HWY 20 N. of Suttle Lake, 1-4 Suttle Lake, 1-6 Lava Butte w/ overview of lake benson, 1-8 Mazama Ash / entrance to Newberry, 1-9 Paulina Ck Outlet, 1-10 Little Cone Campground / Paulina Lake, 1-11 Paulina Peak, 2-1 Lower Paulina Creek near Ogden Camp, 2-2 Lower Trout Creek / Middle Deschutes, 3-1 RR Cut with terrace deposits along Deshutes, 3-3 Hike above Whiskey Dick with overview of “the pot” landslide, 4-2 the northern edge of “the pot” landslide, 4-3 / 4-4 Dant Debris Fan, 5-1 Outhouse Flood Bar, 5-2 Overview of CRB’s and Loess Hills, 5-3 Roadcut with paleosols south of Dalles, 6-1 Petersburg Bar / gravel pit, 6-2 Celilo Falls Overlook, 6-3 Columbia River Overview, unscheduled stop at Alkali Canyon Formation / rock throwing, unscheduled stop at pillow basalts along road cut, 6-7 Arlington Delta / Gravel Pit, 7-1 Rowena Crest / Overview, 7-2 Cascade Locks Marine Park / Bridge of the Gods, 7-3 Bonneville Dam

- A. Location Map / Stop Identification / Physiographic Description
- B. Geologic Overview
 - i. Bedrock Geology
 - a. rock types
 - b. chronology / rock age
 - c. geomorphic setting
- C. Geomorphic Field Observations (for each stop)
 - i. Landforms
 - ii. Processes
 - iii. Materials (types of deposits, texture, grainsize, description)
- D. Photo Gallery (from field photos)
- E. Stop Interpretation and Summary

III. Course Synthesis and Summary (Answer the Questions in Narrative Format)

A. Landforms and Processes Associated with western and central Oregon Rivers

What are the dominant processes that influence western and central Oregon Rivers? In your narrative include both a discussion of both geologic and tectonic processes.

What are the landforms associated with lower hillslope and valley environments along western and central Oregon Rivers?

B. Meteorologic and Climate Controls on Fluvial Processes in western and central Oregon

Compare and contrast precipitation patterns west of the Cascades vs. east of the Cascades. What are the dominant controls on these precipitation patterns?

What types of meteorologic conditions cause flooding west of the Cascades? What meteorologic condition causes the highest magnitude floods?

What types of meteorologic conditions cause flooding east of the Cascades?

C. Geologic Controls on Fluvial Processes in western and central Oregon

What types of climatically-driven and tectonically driven geologic processes result in large magnitude flooding in western and central Oregon?

Compare and contrast the magnitude of floods associated with meteorological vs. geological processes in western and central Oregon.

D. Overview of Hydrologic and Paleohydrologic Techniques (from field exercises)

Why is it important to assess the magnitude and frequency of flood discharges along rivers?

List and discuss the types of techniques that can be used to reconstruct ancient paleofloods, particularly as applied to rivers in western and central Oregon.

E. Overview of River Classification Systems (from field exercises)

List and discuss the types of criteria that are used to classify rivers. Why is river classification important for understanding fluvial processes?

IV. Results from Lab/Field Exercises (answer all questions / type written)

- A. Answers to Field Trip Reading Questions (p. 191-193 of field guide)
- B. Surficial Mapping Data Log Summary (p. 195-196 of field guide)
- C. Stream Ordering Exercise (p. 197-199 of field guide)
- D. Answers to Fluvial Hydrology Problem Set (p. 201 of field guide)
- E. Review of Day 1 / Preview of Day 2 Concepts (p. 203-204 of field guide)
- F. Field Hydrology at Lower Paulina Creek (Day 2) (p. 205-207 of field guide)
- G. Whiskey Dick Exercise (Day 3) (p. 209 of field guide)
- H. Buckskin Mary Exercise (Flood Recurrence Intervals) (p. 211 of field guide)
- I. Soil-Geomorphic Associations of the Columbia Plateau (p. 213-215 of field guide)

V. Acknowledgements

VI. References Cited

VII. Appendix I – Copies of Field Notes