

River Geology Field Course

Summer 2012 – Final Portfolio Instructions

The final report should be compiled as a portfolio, presented in the neat, professional-looking three ring binder, with cover and tab-separators. In addition to paper-hard copy version, portfolios can also be compiled as electronic Adobe Acrobat *.pdf documents. The field trip report will be organized according to the following outline format, and presented in the following order, with section tabs clearly labeled:

- I. Introduction
 - a. General overview of course and field trip
 - i. Figure: Road Map with Trip Stops
 - b. Summary of Course Objectives and Goals of Field Trip

- III. Systematic Field Stop Description (repeat this section for each stop, sequentially on the trip; see stop summary at the end of this document)
 - 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 (1 to 3 paragraphs summarizing the take home message for each stop)

- III. Course Synthesis and Summary Questions (Answer the following in narrative format; word processed, neat and professional looking)
 - 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.

IV. Results from Lab/Field Exercises (answer all questions / type written; present in the following order:)

- A. Pre- and Post-Trip Reading Questions (p. 191-194; include sections 1, 2, 3, 4, and 5)
- B. Stream Ordering Exercise (p. 197-199)
- C. Fluvial Hydrology Problem Set (p. 201)
- D. River Hydrology Concept Review Questions (p. 203-204, questions 1, 2 and 3)
- E. Paulina Creek Review Questions (p. 206, questions 7 and 8)
- F. Whiskey Dick / Whitehorse Profile Exercise (p. 209 Questions 1, 2, 3)
- G. Buckskin Mary Flood Hydrology Exercise (p. 211-212 Questions 1 and 4).
- H. Deschutes River – Applied Hydrology (p. 219-222; all questions part 3 and part 4)
- I. Observations of stratigraphic field cross-sections
 - Mt. Washington Overlook (Glacial Diamicton)
 - Warm Spring Railroad Cut HWY197 Roadcut (John Day Fm. / strath terrace gravels)
 - Hwy 197 Road Cut (The Dalles Formation, Missoula Flood Silts, Pleistocene Paleosols)

V. Acknowledgements

VI. References Cited

VII. Appendix I – Copies of Field Notes