

ES458 River Geology Field Course
Summer 2015 – 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 final class portfolio may be submitted electronically via email attachment, uploaded via moodle, copied/mailed via flash drive, or submitted in hard copy/three ring binder format. 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 introductory statement (1-2 paragraphs) of course objectives and field trip adventure
 - i. Figure 1: Road Map with Trip Stops

II. Generalized Field Site Description (repeat this section for each stop, sequentially on the trip; see stop summary at the end of this document)

- A. Label and Map Site Number (e.g. Site 1-2 = day 1, site 2, etc.), mark and label stop on location map
- B. Field Photo of Site (share with fellow students or visit class web site for archive of photos)
- C. Stop Interpretation and Summary (1-2 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:)

Note: exercises marked with one star () were worked on during the field trip; three stars (***) are pre- or post-trip homework items*

- A. Pre- and Post-Trip Reading Questions (p. 191-194; include sections 1, 3, 4, and 5 all questions)***
- B. Fluvial Hydrology Problem Set (Rational Runoff Problem) (p. 201)*
- C. River Environments Key Word Search and Short Answer Review (*new in 2015*) ***
http://www.wou.edu/las/physci/taylor/gs407rivers/river_environments_key_terms_summary.doc
- E. Whiskey Dick / Whitehorse Profile Exercise (p. 209 Questions 1, 2 and 3)***
- F. Buckskin Mary Flood Hydrology Exercise (p. 211-212 Questions 1 and 4)*
- G. Deschutes Incision Rate Problem (p. 219-220; Part 3)*
- H. Deschutes Water Budget Problem (p. 221-222; Part 4, all questions)*
- I. Field notes, sketches, field calculations:
 - i. Mt. Washington Overlook / Road Cut Sketch (Day 1)*
 - ii. Trout Creek Road Cut Sketch (Day 2)*
 - iii. Geologic map classification and numerical age for time periods (p. 233 and p. 133F)*
 - iv. Correlation matrix of geologic time vs. event for the following geologic phenomena*: John Day Formation, Clarno Formation, Crooked River Caldera, Columbia River Basalt, Newberry Basalt, Newberry Caldera, Western Cascades North Santiam Park, Western Cascades Detroit Dam, Suttle Lake Glacial Till, High Cascades Mt. Jefferson.
 - v. Color classification of Deschutes River rapids and their formative processes (p. 238, p. 235)*
(number rapids 1-23 from upstream to downstream, color code flood = red, landslide = blue, bedrock = green, tributary = yellow)

V. Acknowledgements

VI. References Cited

VII. Appendix I – Copies of Field Notes, as available