## ES407 Senior Seminar - Spring 2015

## **Perspectives on River Restoration**

Academic Showcase Organization and Thematic Subtopics List (Updated April 9, 2015)

Colleagues - see below for a revised outlines and subtopics list related to the River Restoration theme; this is the organization we will use for the Academic Showcase Presentations, and to frame our weekly seminar discussion:

- (1) Introduction (TAYLOR)
  - (A) What is Watershed Assessment?
  - (B) What is River Restoration?
  - (C) Goals and Objectives
    - (i) Salmonid Recovery
    - (ii) Riparian Ecology
- (2) Physical Channel Structure and Morphology (KATIE)
  - (A) woody debris and bed composition
  - (B) channel form and morphology "the meander"
  - (C) channel incision
  - (D) Case Study Examples from Pacific Northwest Rivers
    - (i) Example of natural / healthy river morphology
    - (ii) Example of degraded / unhealthy river morphology
- (3) Hydraulics and Sediment (RYAN)
  - (A) Streamflow, discharge
  - (B) Floodplain connection / side channels
  - (C) Sediment transport / gravel
  - (D) Case Study Examples from Pacific Northwest Rivers
    - (i) Example of natural / healthy river sediment composition
    - (ii) Example of degraded / unhealthy sediment composition
- (4) Water Quality and Fish Habitat Assessment (DYLAN)
  - (A) temperature
  - (B) nutrients
  - (C) turbidity
  - (D) Case Study Examples from Pacific Northwest Rivers
    - (i) Example of natural / healthy water quality fish habitat
    - (ii) Example of degraded / unhealthy water quality fish habitat
- (5) Engineered Restoration Strategies I Fish Passage and Riparian Habitat (IAN)
  - (A) Roads / Culverts
  - (B) Dams
  - (C) Riparian Restoration (Native Plants, Channel Tree Cover / Shading, Beaver Reintroduction)
  - (D) Case Study Examples from Pacific Northwest Rivers
    - (i) Examples of completed road/culvert, dam, riparian plant restoration initiatives
- (6) Engineered Restoration Strategies II Channel Form and Composition (ESTEBAN)
  - (A) LWD
  - (B) Gravel Retention / Placement
  - (C) Channel Form Modification
  - (D) Case Study Examples from Pacific Northwest Rivers
    - (i) Examples of completed LWD, gravel, channel restoration initiatives
- (7) Conclusion (TAYLOR)
  - (A) Census / State of River Restoration in U.S.
  - (B) Project Monitoring and Evaluation