ENVSE 408 – CONTAMINANT HYDROLOGY

GROUP PRESENTATION RUBRIC

One of the deliverables for the course will be a group presentation. This is to (i) encourage you to think critically and creatively about a culminating topic for the course (that of aquifer restoration/remediation) and (ii) to communicate and share your findings with a student audience as a tutorial.

The ground rules for this are as follows:

Students will work in small groups to develop a presentation to communicate the principal methods employed in an assigned class of remediation method. These will be selected from the six classes of remediation methods *viz*:

1. Biological methods
2. Electrolytic methods
3. Containment and ground modification methods
4. Soil washing methods (liquid) (in situ)
5. Air stripping (gas) methods (in situ)
6. Thermal methods

Groups will be assigned randomly in the first few weeks of class. The presentation will take one period per group (75 min) and will therefore be substantial.

Student groups will arrange a first meeting and planning session to define structure and responsibilities, for the presentation - by the end of week #6. Group members will report this on canvas.

Presentations will be due on Tu week #12 (early April).

Groups will upload their presentations and supply 10 multiple choice questions each with four answers by the submission deadline of Tu week #12 (early April) midnight.

The best presentations will include information on:

1. **Physical Mechanisms [20%]** Describe the principal/crucial physical mechanism by which the remediation method works. Use simple illustrations of the physical principles.
2. **Influencing Factors [10%]** Describe the physical characteristics of the contaminant/qquifer/aquiclude that either limit the applicability of the method or which make the method particularly useful.
3. **Field Implementation [20%]** Describe the techniques and equipment setup that allow the technique to be used.
4. **Demonstration Level [20%]** Describe some case studies where the method has been used and highlight successes or failures to illustrate points #1 and #2 above.
5. **Applicability and Limitations [20%]** Describe characteristics that limit the use of the method or make it particularly useful, viz. #2 above.
6. **Cost and Availability [10%]** Describe estimated costs for implementation of the method standardized on some manner as $/mass or $/volume.
7. **Peer Review []** Not a topic but a multiplier on your grade.

Examples of this outline are included in the course notes and also in Grubb and Sitar (see syllabus) but these resources are both outdated and are insufficient except as guidelines for structure.

Recorded examples at: https://www.ems.psu.edu/~elsworth/courses/geoee408/cm/

Grading:

Group grade (85%) based on presentation using rubric. Individual grade modified (15%) from anonymous peer review among group.

Sample Quiz Question:

1. Air sparging and vapor extraction works principally for sites and contaminants with
    a. **High Henry's law coefficient and high permeability**
    b. High Henry's law coefficient and low permeability
    c. Low Henry's law coefficient and high permeability
    d. Low Henry's law coefficient and low permeability
2. Question 2……etc.
    a. **Answers to Q2**