#### ES202 Cyber Friday Feb. 23 Video Assignment Due Monday Feb. 26, 2018 at Class Time

Part 1. Complete the attached review question sheets for the following videos posted as MP4 files on the ES202 Class Web Site

http://www.wou.edu/las/physci/taylor/g202/ES202 home.html

#### (1) Weathering, Soils and Mass Wasting Video Review Questions

http://www.wou.edu/las/physci/taylor/g202/Earth Revealed weathering and soils.mp4 http://www.wou.edu/las/physci/taylor/g202/Earth Revealed Mass wasting.mp4

#### (2) Rivers - Erosion - Landscape Evolution Video Review Questions

http://www.wou.edu/las/physci/taylor/g202/Earth Revealed Running water landscape evolution FLUVIAL2.mp4

Part 2. Answer the following take-home essay questions.

- 1. List and discuss three physical and two chemical processes whereby rocks are weathered into regolith at the Earth's surface. Draw sketches and provide examples to support your answers.
- 2. List, define and discuss four primary mass wasting processes that operate at the Earth's surface. Include in your answer the range of materials and processes that are involved with each. Draw sketches to support your answers.
- 3. Discuss the relationship between long-term river processes vs. the balance of tectonic uplift. What is the response of rivers over geologic time to tectonic uplift of the landscape. Use the Colorado River and Grand Canyon as an example to support your discussion.

## ES202 Video Exercise: Weathering and Mass Wasting

These review questions pertain to the Earth Revealed Video Series: Part 15 – Weathering and Part 16 – Soil and Mass Wasting. View both parts, while watching, take notes and answer the following review questions.

# Earth Revealed – Weathering and Soils

1. What is the significance of Cleopatra's Needle with respect to rock weathering?

2. List and discuss some examples of physical and mineralogical features of rock that affect resistance to weathering (e.g. what are some factors that make rocks easier or harder to weather over time).

3. List and briefly discuss two factors that control rates of weathering

4. Define exfoliation. Draw a sketch to show this process by which rock masses weather at the Earth's surface.

5. What physical properties render some rocks more prone to weathering than others,

6. What is the process by which buried rock masses are brought from their environment of formation within the Earth to the surface?

7. How is acid rain formed? Why is natural rainfall slightly acidic (with pH less than 7)? Why is acid rain such an environmental concern?

8. List and briefly discuss the three main types of soil horizons illustrated in the video. Draw a cross sectional sketch to accompany your answer.

9. What is a wind break and why is it used

10. List some examples why rock weathering and soil development are important to your survival on planet Earth.

### Part 16 - Earth Revealed - Mass Wasting

11. How many lives were taken as a result of the eruption and lahar at the volcano in Columbia? What types of hazards to human health and economy are associated with mass wasting processes?

12. What is "mass wasting"? How does it relate to weathering?

13. List and discuss three factors that control mass wasting processes.

14. What mass wasting process may transport material at greater velocities than debris flow?

15. What type of mass wasting causes the most annual economic damage in the U.S.?

7. List, discuss and summarize the 4 main types of mass wasting covered in the video. Explain what they are and how they work. Drawings are helpful.

8. Give three examples of how human land-use can enhance mass wasting processes.

9. What are the economic and social implications of mass wasting in urban and developed areas. Key your answer to how these factors might relate to Coastal Oregon.

### ES202 Lab Video Exercise Earth Revealed – Running Water: Landscape Evolution (fluvial2.mpeg)

What is the process that has eroded the Grand Canyon? How long have these processes been operating?

How many tons of sediment does the Colorado River carry every day?

Define the term river "base level".

True or False: Tectonic uplift of the landscape will cause rivers to extensively deposit sediments.

True or False: Over time, rivers will transform from processes of vertical erosion, to processes of lateral erosion.

True or False: all rocks and sediments erode similarly, at similary rates, under the forces of river erosion.

Draw a sketch of a dendritic river drainage pattern. What types of underlying rock structure result in this shape?

True or False – a drop in base level results in triggering vertical river erosion and down-cutting.

Define the term "floodplain", how does it relate to the river channel. Draw a sketch.

Define the term "river terrace" and discuss how they form.

Draw a sketch and describe a "meander" pattern that develops in rivers.

Define the term "delta", what are they composed of? How do they form?

Give an example of a large delta area that comprises part of the United States.

True or False: The Mississippi river is dynamic and continuously shifting it's course due to flooding and sedimentation.