**ES486 Introduction to Sedimentary Rocks Online Lab Exercise Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Note: this worksheet will be uploaded to the ES486 Canvas Course Shell Assignment Page

**Part 1. Lab Manual Exercises**

Open the Sedimentary Rocks Lab Manual Exercise as posted on the class web site, located at the following URL:

<https://people.wou.edu/~taylors/es486_petro/lab_exercises_sed_rks.pdf>

**Section A. Reading review questions.** Read pages 153-160. Define the following key terms and answer review questions as presented in the reading.

1. Briefly describe the difference between “sediments” and “sedimentary rocks”
2. Briefly describe the difference between “chemical weathering” and “Physical weathering”, and related, the difference between “chemical sediment” and “detrital sediment”.
3. Examine Figure 6.1. Summarize the processes of weathering, sediment transport, deposition, and lithification at or near the Earth’s surface.
4. Describe and define the process of lithification, what is it and how does it occur?
5. Examine Figure 6.2 on op. 158. Based on composition and origin of sediment, list the three primary types of sedimentary rocks. What is the difference between the three classes of rocks?
6. For detrital sediment, define / describe the differences from clay, silt, sand, and gravel. What is the primary factor that separates each class of sediment?
7. What is the difference between the process of sediment “rounding” and sediment “sorting”, provide examples of how each is affected by sediment transport process.
8. Examine Figure 6.5 on p. 161, provide an example of the process of lithification and cementation of sand to form sandstone.
9. Examine Figure 6.6 on p. 161, describe the process of the formation of limestone.
10. Examine Figure 6.8 on p. 162, describe the process of the formation of chemical sedimentary rock “rock salt”
11. Examine the Sedimentary Rock Classification Chart Figure 6.9 on p. 164. List the three procedural steps for identifying sedimentary rocks.
12. Continue examining the Sedimentary Rock Classification Chart Figure 6.9 on p. 164. Describe the primary differences in composition and texture that distinguish the following sedimentary rocks (what is the basis of identification and naming for each, and list whether they are detrital, biochemical, or chemical in origin):

Conglomerate vs. Breccia

Quartz Sandstone vs. Arkose Sandstone

Siltstone vs. Shale

Fossiliferous Limestone vs. Micrite

*(Bonus Question - True or False: limestone fizzes with hydrochloric acid)*

Rock Salt vs. Rock Gypsum

Chert

1. Examine the sedimentary environments block diagram Figure 6.10 on p. 165. List the types of environments where the following sediments and resulting sedimentary rocks may form near the Earth’s surface. In your answer, identify whether they occur in non-marine or marine settings, or both.

Chert

Limestone

Rock Salt

Rock Gypsum

Sandstone with marine shell fossils

Sandstone with terrestrial plan fossils

Conglomerate

Breccia

Coal

Mudstone or Shale