

## **Test 2 Friday Nov. 17, Approx. 100 points, Soils and Landscapes**

*Format: The quiz and test will be a mix of multiple choice, fill-in-the-blank, short answer AND applied knowledge 'lab' exercises. Test questions can come from: Lectures and lecture slides, textbook readings, handouts, labs, field trips and our soil discussions.*

*Test 1 aimed to help you understand how soils are observed, characterized and identified. Test 2 content works to have you apply that information to the Earth's Surface. We deviated a bit from the syllabus so when studying go off of the webpage [https://exploreiowageology.org/UNI\\_SoilsLandscapes.php](https://exploreiowageology.org/UNI_SoilsLandscapes.php)*

### **Testable content for test 2 =**

1. Start with the syllabus and the Geomorphology Fundamental Concepts... What are they? How do they relate to Test 1's Soil concepts? Advanced knowledge/skills will be able to apply these concepts to specific outcrops or 'stories' explained during our field trips.

2. Iowa's Landform Regions – Know where they are, the relative ages, major developmental processes and products.

3. Be able to describe what a soil survey is, the information it contains and how it is used.

4. Similarities and differences between the hardcopy of a soil survey and the web soil survey.

<https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx> , Be able to explain how to use the web soil survey in your own words.

5. Rock cycle – Be able to... 1. Use the provided rock cycle from the Hand out, including changes in energy. 2. Add specifics of weathering/soil develop to the rock cycle. 3. Provide examples of each rock type. 4. Explain why have the rock cycle is important to this class.

6. Weathering: 1. Know the types and be able to provide examples of each. 2. What are the processes of each weathering type? 3. Does each weathering type affect the break down of any mineral and/or rock the same way? 4. What is the role and importance of water? 5. Role of pH in weathering? Why do soil orders form patterns across the Earth's surface as a product of weathering?

7. A possible short answer question would be to explain the relationships between Bowen's Reaction Series and the Goldich Weathering Series.

8. Hydric soils – How do they form? How are they recognized? What settings or applications would it be important to know hydric soils exist?

9. Geomorphology basic vocabulary and concepts discussed in class... E.g. Alluvial vs colluvial, Slope positions, basic surface types and related energies, Catenas, overall components of Soil Geomorphology. Relationship between soil texture and porosity and permeability...

10. The Robert Ruhe presentation... Geosol vs. Paleosol vs Welded Soils, using soils and soil patterns to identify changes in landscape evolution. His work in Iowa...

11. Soil Chronostratigraphy, Paleosols and Environmental Reconstructions – Using Chad's Sicily Research as an example

12. Information from field trips, Phil Kerr and Josh Balk are also possible Test 2 content.