

UNI- Department of Earth and Environmental Science  
*Introduction to Geology* - Dr. C. E. Heinzel  
Learning Guide #3

**Final Exam – Monday, May 9, 8 to 9:50 AM Latham 125 lecture room, approx. 140 points**

**Cumulative exam**

Use your first two learning guides and tests to study, part of the final will consist of previous test questions that have reordered potential answers. There will not be an applied second part of the test. This test is closed note and book.

Test Unknowns

1, Glaciers

- A. What is the name of the most recent glacier that impacted the upper Midwest?
- B. What are the primary glacial types? Concepts of Accumulation, equilibrium and ablation.
- C. Be able to characterize basic glacial erosional and depositional features.
- D. What are Iowa's landform regions? Which one are you currently on?
- E. How do alpine glaciers differ from continental glaciers?
- F. Why are glaciers important indicators of climate change?

2, Rivers

- A. What is a watershed, How are watersheds defined? What watershed does UNI reside?
- B. Know the basic drainage patterns. What drainage pattern is common in Iowa?
- C. Be able to compare and contrast permeant vs ephemeral & effluent vs influent rivers.
- D. What is the primary source of energy that drives the water cycle and rivers?
- F. Be able to write a short answer paragraph discussing the historical importance of Iowa's Rivers.
- G. How are floods defined?
- H. Be able to read and interpret a hydrograph.

3, Groundwater

- A. Be able to draw and label an aquifer system (confined or unconfined) including the zones of aeration and saturation.
- B. How does porosity, permeability and hydraulic head affect groundwater systems?
- C. Why does the chemical composition of groundwater change over time? Most groundwater in the Midwest is considered 'hard' water, why?
- D. Is groundwater a renewable or nonrenewable resource? What variables affect groundwater recharge?
- E. What are common sources of groundwater contamination, how can they be prevented?
- F. How can human activities adversely affect ground water?
- G. Describe how a Karst landscape forms and what features are created...

4. Geoarchaeology (emphasizing soil and mass wasting)

Learning guide (clues) provided during class sessions lecture and lab.

