

## **ES202 Quiz 1 Study Guide** (updated Winter 2021)

**Quiz Logistics:** Quiz 1 will occur on Monday Feb. 1, 2021, worth a total of 25 points, 1 point per question x 25 questions. Quiz questions will be comprised of multiple choice, true/false and short answer-fill in blank. The online quiz will be available as a link at the top of the General Section of the ES202 Lecture Class Moodle page, between 8 AM and 11 PM on quiz day. Once a student begins the quiz, it will be timed for 1 hour. You may begin the quiz at any time between 8 AM and 11 PM, but make sure that once you start it, you have enough time before the 11 PM cut-off availability to complete the quiz. The quiz questions will be submitted only once, with no opportunities for resubmissions. The Professor will be manually grading your quizzes and reviewing your answers, in addition to the automated Moodle grading tools; typos and misspelled words in short answer will be evaluated for correctness in content. Additional testing accommodations are possible by prior arrangement with the professor.

### **Recommended Study Techniques**

- (1) review pre-lab questions and video review exercises: study the questions and answers
- (2) review the "How to Study" Physical Science Guide
- (3) use the key words / concepts as a checklist below as a guide to help you focus on the class notes
- (4) memorize terms and concepts
- (5) go over your on-line practice quiz questions / answers, make sure you know the answers
- (6) go back over the labs and make sure you can do the tricks / skills
- (7) review the important figures in your lab manual and text

**NOTE: I would spend a minimum of 3 hours studying for this quiz if I wanted to do well.**

### **Review Questions from Homework Assignments:**

- Chapter 1 Introduction Reading Review Questions  
[https://people.wou.edu/~taylors/g202/Reading\\_Review\\_Questions\\_Chapter1\\_Introduction.docx](https://people.wou.edu/~taylors/g202/Reading_Review_Questions_Chapter1_Introduction.docx)
- Earth Revealed Down to Earth Video Review Questions  
[https://people.wou.edu/~taylors/g202/Video\\_Exercise\\_Earth\\_Revealed\\_Down\\_to\\_Earth.docx](https://people.wou.edu/~taylors/g202/Video_Exercise_Earth_Revealed_Down_to_Earth.docx)
- Earth Revealed Plate Dynamics Video Review Questions  
[https://people.wou.edu/~taylors/g202/plate\\_dynamics\\_review\\_questions.pdf](https://people.wou.edu/~taylors/g202/plate_dynamics_review_questions.pdf)
- Earth Revealed Minerals Video Review Questions  
[https://people.wou.edu/~taylors/g202/mineral\\_video\\_ex.pdf](https://people.wou.edu/~taylors/g202/mineral_video_ex.pdf)
- Intro to Rocks and Minerals Video Review Questions  
[https://people.wou.edu/~taylors/g202/video\\_exercise\\_rock\\_cycle.docx](https://people.wou.edu/~taylors/g202/video_exercise_rock_cycle.docx)
- Pre-Lab Concept Review Questions: Minerals-Rocks-Plate Tectonics  
[https://people.wou.edu/~taylors/g202/Pre-Lab2\\_tectonics-minerals-rocks.pdf](https://people.wou.edu/~taylors/g202/Pre-Lab2_tectonics-minerals-rocks.pdf)
- Earth Revealed Sedimentary Rock Video Review Questions  
[https://people.wou.edu/~taylors/g202/sed\\_videx.pdf](https://people.wou.edu/~taylors/g202/sed_videx.pdf)
- AGI Building the Planet Video Review Questions  
[https://people.wou.edu/~taylors/g202/Shaping\\_Planet\\_Earth\\_Questions\\_ver2.docx](https://people.wou.edu/~taylors/g202/Shaping_Planet_Earth_Questions_ver2.docx)
- Pre-Lab Review Questions: Sedimentary Rocks  
[https://people.wou.edu/~taylors/g202/Pre-Lab3\\_sedimentary\\_rocks.pdf](https://people.wou.edu/~taylors/g202/Pre-Lab3_sedimentary_rocks.pdf)

### **Moodle Online Practice Quizzes**

- Task 2-1 Practice Quiz: Plate Tectonics, Minerals, Rocks
- Task 3-1 Practice Quiz: Sedimentary Rocks

## Lab Exercises

- Task 3-5 Physical Properties of Minerals

### Part 1. Class Notes / Lecture Concepts

### Key Words

#### ***Fundamentals/ Intro***

<http://www.wou.edu/las/physci/taylor/g202/202intro.pdf>  
[https://people.wou.edu/~taylors/g202/Intro\\_Earth\\_System\\_Sci\\_Method.pdf](https://people.wou.edu/~taylors/g202/Intro_Earth_System_Sci_Method.pdf)

Environmental Spheres  
Lithosphere  
Biosphere  
Hydrosphere  
Age of the Earth  
Ultimate Driving Forces  
    Climate  
    Gravity

Tectonics  
Crustal Composition  
Core  
Mantle  
Crust  
Oceanic Crust  
Continental Crust  
Asthenosphere  
Lithosphere  
"Plates"  
Scientific Method  
Hypothesis  
Experimental Design  
Unit Algebra

Unit Conversion  
Graphing  
~~Equation of Line~~  
~~Slope of Line~~  
 ~~$y = mx + B$~~   
~~map view~~  
~~cross-section view~~  
~~3-D view~~  
metric / English units  
mass  
temperature  
density

---

#### ***Mineral/Rock Overview***

<https://people.wou.edu/~taylors/g202/202rkmin.pdf>

rock  
mineral  
element  
compound  
atom  
nucleus  
electron  
proton  
neutron  
mineral properties  
crystal form  
luster  
color  
granite  
basalt  
~~obsidian~~  
sandstone  
shale

streak  
hardness  
cleavage  
fracture  
specific gravity  
rock forming minerals  
silicates  
carbonates  
oxides  
sulfates  
halides  
rock cycle  
igneous  
metamorphic  
sedimentary  
magma / lava  
limestone  
siltstone  
~~gneiss~~  
~~slate~~  
~~marble~~

fast-cooling lava  
slow-cooling magma  
two-phase cooling  
extrusive / lava  
intrusive / magma  
weathering  
sediment  
sediment transport  
sediment burial  
lithification  
fossil  
metamorphic  
foliation  
non-foliated  
heat-pressure-chemical  
  
quartz  
feldspar  
muscovite  
biotite

---

#### ***Plate Tectonics Overview***

<https://people.wou.edu/~taylors/g202/202tect.pdf>

Continental Drift

Plate Boundaries  
    Convergent

Divergent  
Transform  
Spreading Center  
Subduction Zone

Transform Fault  
Volcanic Arc  
Mountain Building  
Mid-oceanic ridge

Basaltic Oceanic Crust  
Granitic Continental Crust

---

***Weathering /Sediment***

<https://people.wou.edu/~taylor/g202/202sedrk.pdf>

Weathering  
Erosion  
Sediment  
Agents of Transport  
    Wind  
    Water  
    Ice  
    Gravity  
Physical Weathering

rk fragmentation  
frost wedging  
unloading/release  
Thermal Expansion  
Root Wedging  
Animal Burrowing  
Chemical Weathering  
    carbon dioxide  
    carbonic acid  
    water  
Clay (size / mineral)  
bedrock

soil  
regolith  
colluvium  
alluvium  
drift  
lacustrine  
anthropogenic  
aeolian  
clay  
mass wasting

---

***Sedimentary Rocks***

<https://people.wou.edu/~taylor/g202/202sedrk.pdf>

weathering  
sediment  
erosion  
lithification  
    compaction  
    cementation  
Sed. Rock types  
    Detrital  
    Biochemical

chemical  
sediment size fractions  
    gravel  
    sand  
    silt  
    clay  
grain shape  
grain sorting  
rock types  
    sandstone  
    conglomerate  
    shale  
    limestone

evaporites  
mudstone  
rock salt  
crystalline vs. microcrystalline  
coal  
clastic / nonclastic  
marine  
nonmarine  
fluvial  
lacustrine  
glacial

## Questions for Thought

How do the three ultimate driving forces relate to anything that we've covered since the beginning of the term?

What is the elemental composition of the Earth's crust? atmosphere?

What is the difference between a rock and mineral? Can you sketch the rock cycle yet?

What is the controlling factor of mineral properties? Why are they different?

What is the crust anyhow? Can you draw a diagram of the interior of the Earth (core, mantle, asthenosphere, crust)?

What factors influence how fast a rock will weather? Do all rocks weather at the same rate?

What is the difference between weathering and erosion?

What are the two meanings of the word "clay"?

What do rocks inherently decompose? Why are clay minerals stable at the Earth's surface?

What is the sedimentary process from start to finish?

How does transport energy relate to grain size of deposits? (e.g. would you find boulders in the deep ocean?)

What are the basic marine and nonmarine sedimentary environments?

What are sedimentary structures and how are they used to reconstruct sedimentary environments?

What type of environment do the various sed. rock types form? e.g. sandstone, conglomerate, evaporites, coal, mudcracks, limestone, etc. where would these rocks form at the earth's surface?

How do rocks physically and chemically weather? What are some of the specific processes?

How do sediments accumulate over time? How is time recorded in the rock record?

## 2. Lab Skills to Work On

### Review Pre-Lab Questions and Key Words

Applying the scientific method

basic metric / english unit conversion

graphing

drawing sketch maps and cross-sections

Identifying basic mineral properties

    which minerals / rocks fizz?

    metallic vs. nonmetallic

    light vs. dark colored

    1 or 3 directions of cleavage

can you do a basic mineral hardness test?

Could you identify an igneous, sedimentary vs. metamorphic rock?

what about the three diff. types of sed. rocks?

Can you estimate: grainsize? sorting? grading? angularity?

Associating a specific rock type to a possible sedimentary environment?

How does transport energy relate to grain size of deposits? (e.g. would you find boulders in the deep ocean?)

What are the basic marine and nonmarine sedimentary environments?

What are sedimentary structures and how are they used to reconstruct sedimentary environments?

What type of environment do the various sed. rock types form? e.g. sandstone, conglomerate, evaporites, coal, mudcracks, limestone, etc. where would these rocks form at the earth's surface?