

## ES104 Final Quiz 3 Study Guide – Summer 2019

### RECOMMENDED STUDY TECHNIQUES

- 1) review the "How to Study Physical Science" guide available on the web site.
- 2) use the concepts below as a guide to help you focus on your notes
- 3) memorize terms and concepts (make flash cards, rewrite definitions 100 times, etc.)
- 4) go back over the labs and make sure you can do the tricks / skills
- 5) review some of the important figures in your lab manual and text
- 6) go back over the previous study guides; review Moodle Practice Questions
- 7) be able to link the terms to concepts, and the concepts to Earth processes
- 8) Go to the class website and view all "Slide Shows/Figures / Overheads to Accompany Class Notes"

Plate Tectonics

Seismology / Earthquakes

Volcanism / Igneous Activity

#### *Week 2 - Plate Tectonics*

Mineral

Element

Rock

Rock Types

Igneous

e.g. basalt

e.g. granite

Sedimentary

e.g. sandstone

Metamorphic

Magma

Lava

Weathering

Sediment

Volcano

Earthquake

Seismology

Crust

Oceanic

Continental

Lithosphere (Plate)

Crust

Upper Mantle

Asthenosphere

Outer Core

Inner Core

Plate Tectonics

Plate Boundaries

Convergent

Divergent

Transform

Convergent

Subduction

Subduction Trench

Volcanic Arc

(e.g. Cascades)

Plate Destruction

accretionary tectonics

Divergent

Seafloor Spreading

Mid-Oceanic Ridge

Plate Creation

Transform Fault

e.g. San Andreas

e.g. Offset Mid-

Ocean Ridge

Alfred Wegner

Continental Drift

Jig-Saw Fit of Continents

Pangaea

Match-up of Fossils

Match-up of Geology

Modern Evidence

Paleomagnetism

Seafloor Stripes

Polar Wandering

Normal Polarity

Reverse Polarity

Seismic Distribution

Volcanic Distribution

Hot Spots

Hot Spot Tracks / Hawaii

Hawaiian Islands

Seamounts

Volcanic Islands

Subduction Zone Types

Oceanic-Oceanic

e.g. Japan

Oceanic-Continental

e.g. Cascades

Continental-Continental

e.g. Himalayas

Plate Motion Rates

1-10 cm/yr

Continental Rifting

e.g. Red Sea

Plate Driving Mechanism

Internal Heat

Radioactive Source

Heat Exchange

Mantle Convection

Convection cells

rising hot rock

sinking cool rock

Ridge Push

Trench Pull

Density Driven

#### *Week 3 - Earthquakes*

earthquake

epicenter

focus

wave refraction

wave reflection

s-wave shadow zone

p-wave shadow zone

seismic risk  
 seismic hazard  
 p wave  
 s wave  
 compressional wave  
 shear wave  
 surface wave  
 love wave  
 San Andreas Fault  
 fault creep  
 stick-slip  
 fault  
 blind fault  
 seismic waves  
 source of earthquakes  
 normal fault  
 reverse fault  
 strike slip fault  
 fault strand  
 fault zone  
 fault segment  
 ductile deformation  
 elastic deformation  
 brittle deformation  
 elastic rebound  
 foreshocks  
 aftershocks  
 main shock  
 wave form  
 wavelength  
 frequency  
 amplitude  
 body waves  
 surface waves  
 longitudinal waves  
 primary waves  
 shear waves  
 transverse waves  
 seismograph  
 seismogram  
 first p-wave arrival  
 first s-wave arrival  
 p wave velocity  
 s wave velocity  
 surface wave velocity  
 epicenter / triangulation  
 Mercalli Scale  
 earthquake intensity  
 earthquake magnitude

Richter Scale  
 seismicity  
 tsunami  
 ground shaking  
 earthquake / landslides  
 liquefaction

*Week 3 – Pacific Northwest  
 Earthquake Hazards*  
 Oregon / Pacific Northwest  
 PNW earthquake hazards  
 subduction zone  
     earthquakes  
 crustal earthquakes  
 volcanic earthquakes  
 paleoseismology  
 last PNW big event = 300 yr  
 tsunami deposits (sand)  
 bay mud  
 coastal uplift  
 coastal subsidence  
 marsh submergence  
 tsunami cycle  
 Risk Factors  
 GPS / ground motion  
 hazard  
 risk  
 alluvium  
 bedrock  
 groundwater  
 Monmouth hazards  
 Willamette Valley hazards  
 saturated sediments  
 ground shaking

*Week 3 – Volcanism*  
 volcanic eruptions  
 explosive eruption  
 quiescent eruption  
 magma viscosity factors  
 temperature  
 silica content  
 gas content  
 >temp, < viscosity  
 <temp, > viscosity  
 >silica, > viscosity  
 <silica, <viscosity  
 >gas, > explosiveness  
 >viscosity, > explosiveness

products of volcanic eruptions  
 lava – pyroclastics - gas  
 low silica lava = basaltic  
     pahoehoe  
     aa  
 high silica lava = rhyolitic  
 escaping gases  
 water vapor  
 carbon dioxide  
 hydrogen sulfide  
 pyroclastic materials  
     fine ash  
     pumice  
     cinders  
     blocks / bombs  
  
 anatomy of volcano  
     crater  
     caldera  
     magma chamber  
     central vent  
     flank eruption  
 volcano types  
     shield (e.g. Newberry,  
     Hawaii)  
     cinder (e.g. Lava Butte)  
     stratovolcano  
     (e.g. Mt. Hood)  
 collapsed caldera (Crater Lake)  
 Intrusive Igneous Bodies  
     dikes  
     sills  
     laccoliths  
     batholiths  
     stocks  
     volcanic necks