

Study Guide For Final Exam: Geology

Introduction (Chapter 1)

- 1) Geologic Time
- 2) Basic Tectonics
- 3) Earth Systems

Earth's Interior and Geophysical Properties (Chapter 2)

- 1) Earth's Internal Structure
 - a) Compositional View
 - b) Geophysical View
- 2) Gravity Measurements
- 3) Isostasy
- 4) Earth's Magnetic Field
 - a) Magnetic Reversals
 - b) Anomalies
- 5) Heat Within the Earth
 - a) Geothermal Gradient
 - b) Heat Flow

The Sea Floor (Chapter 3)

- 1) Active Continental Margins
- 2) Passive Continental Margins
- 3) The Mid-Ocean Ridge (MOR)

Plate Tectonics (Chapter 4)

- 1) Continental Drift-Wagener
- 2) Seafloor Spreading-Hess
- 3) Plate Boundary Types
 - a) Convergent Boundaries
 - 1) Ocean-Ocean
 - 2) Ocean-Continental
 - 3) Continental-Continental
 - b) Divergent Boundaries
 - c) Transform Boundaries
- 4) Examples of all Boundary Types

Mountain Belts and the Continental Crust (Chapter 5)

- 1) Characteristics of Major Mountain Belts
- 2) The Evolution of a Mountain Belt
 - a) Accumulation Stage
 - b) Orogenic Stage
 - c) Uplift and Block-Faulting Stage

Geologic Structures (Chapter 6)

- 1) Brittle and Ductile Behavior in Rocks
- 2) Faulting
 - a) Strike-Slip Faults
 - b) Dip-Slips Faults
- 3) Folding
 - a) Anticlines and Synclines
 - b) Domes and Basins
 - c) Monoclines

Earthquakes (Chapter 7)

- 1) Types of Seismic Waves
 - a) Body Waves
 - b) Surface Waves
- 2) Locating and Measuring Earthquakes
 - a) Magnitude (Richter and Moment Magnitude)
 - b) Intensity (Mercalli)
 - c) Calculating the Epicenter
- 3) Distribution and Effects of Earthquakes
 - a) Tsunamis
 - b) World Distribution

Geologic Time (Chapter 8)

- 1) Extinction and its causes
- 2) Major Life Forms and Geologic Events of the Time Scale
- 3) Absolute Dating
- 4) Relative Dating

Chemistry and Minerals (Chapter 9)

- 1) Chemical Bonds: Ionic, Covalent and Polar Covalent
- 2) Isotopes and their Importance to Geology
- 3) Criteria for Something to be Called a Mineral
- 4) Silicates
- 5) Nonsilicates
- 6) The Physical Properties of Minerals

Igneous Rocks (Chapters 10 and 11)

- 1) Felsic vs. Mafic Magmas
- 2) Bowen's Reaction Series
- 3) Volcanism: Felsic (Composite Cones) and Mafic (Shield)
- 4) Igneous Intrusions

Sedimentary Rocks (Chapter 14)

- 1) Graded Bedding
- 2) Clastic vs. Nonclastic sedimentary rocks
- 3) Transgression and Regression
- 4) Sedimentary Structures

Metamorphism (Chapter 15)

- 1) Regional vs. Contact Metamorphism (Where does it occur?)
- 2) Factors Influencing Metamorphism
- 3) Metamorphic Facies

Weathering (Chapter 12)

- 1) Chemical Weathering
- 2) Mechanical Weathering
- 3) Special Weathering Types
 - a) Spheroidal Weathering and Exfoliation
 - b) Differential Weathering

Mass Wasting (Chapter 13)

- 1) Factors Influencing Mass Wasting
- 2) Types of Mass Wasting (Table 9.1)
- 3) Evidence of Creep
- 4) Types of Debris Flows

Streams and Floods (Chapter 16)

- 1) Drainage Patterns
- 2) Stages of Development of Streams
- 3) Factors Influencing Stream Erosion and Deposition
- 4) Stream Erosion
- 5) Stream Deposition

Groundwater (Chapter 17)

- 1) The Water Table and Movement of Ground Water
- 2) Aquifers
- 3) Effects of Groundwater
 - a) Karst Topography
 - b) Other Effects

Deserts and Wind Action (Chapter 18)

- 1) Distribution of Deserts and Reasons for their Distribution
- 2) Characteristics of Deserts
- 3) US Desert Areas
- 4) Wind Erosional Features
- 5) Wind Depositional Features (Including Dune Types)

Glaciers and Glaciation (Chapter 19)

- 1) The Glacial Budget
- 2) Types of Glaciers
- 3) Glacial Erosion and its Features
- 4) Glacial Deposition and its Features
- 5) Past Glaciations (and Future) and their Causes

Waves, Beaches and Coasts (Chapter 20)

- 1) Parts of the Wave
- 2) Near Shore Circulation
 - a) Longshore Currents
 - b) Rip Currents
 - c) Wave Refraction
- 3) Erosional Coasts
- 4) Depositional Coasts
- 5) Other Coasts
 - a) Drowned Coastlines
 - b) Uplifted or Tectonic Controlled Coasts

I will ask you eight essay questions from this list of topics. You will be only required to answer five of those questions. There will also be a bonus question. The essay section of the test is worth 50 points. The multiple choice part of the exam is also worth 50 points.