
GLG101: INTRODUCTION TO GEOLOGY I (PHYSICAL)
SPRING 2003
PROFESSOR MATT FOUCH

STUDY GUIDE FOR EXAM #2

In this first part of the course, we covered the Chapters 6-10 (**NOT** Chapter 11), and Interludes B and C. The most important facts and concepts for you to know and understand are listed below. The exam will be in-class, closed everything, with multiple choice and true/false questions. You will not be allowed to wear hats or sunglasses (unless prescribed by a doctor). Please remember to bring your ASU ID and a Number 2 pencil on exam day.

➤ **Magma and Igneous Rocks (Chapter 6)**

- Why should we care about igneous rocks?
- Distinguish magma vs. lava, intrusive vs. extrusive
- Explain how igneous rocks are named, based on composition and texture
- What happens when magma crystallizes, what determines size of a crystal?
- The relationship between plate tectonics and volcanism (mid-ocean ridges, subduction zones, hotspots)
- What is viscosity? What factors control viscosity?
- What makes a dark or light silicate rock? What are the names for these types (mafic and silicic)
- How do we melt rocks?
- What are the different forms of magmatic intrusions?
- **NOT responsible for Bowen's reaction series!**

➤ **Sediments and Sedimentary Rocks (Chapter 7)**

- Know the differences between detrital (clastic) and chemical sedimentary rocks.
- Know the processes behind physical and chemical weathering.
- Know examples of physical and chemical weathering processes.
- How does sediment become a sedimentary rock?
- What is soil made of?
- Know the characteristics of clastic sedimentary rocks (sorting, shape, etc.).
- Know the characteristics of sedimentary structures (stratification, cross-bedding, etc.).
- Know the relationship between clast size and depositional environment.
- Understand the types of environments where sedimentary rocks are formed.

➤ **Metamorphic Rocks (Chapter 8)**

- What processes contribute to metamorphism?
- What are the main types of metamorphism?
- What determines the mineral assemblage of a metamorphic rock (composition; temperature and pressure of formation)
- Know the textures of metamorphic rocks.
- What is the difference between prograde and retrograde metamorphism?
- What is the difference between high-grade and low-grade metamorphism?

➤ **The Rock Cycle (Interlude B)**

- What are the three major rock groups?
- What is the process by which each of these groups forms?

➤ **Volcanic Eruptions (Chapter 9)**

- What materials come from volcanoes?
- Name the materials extruded during a volcanic eruption
- What factors determine eruptive style? (degree of violence)
- List the types of volcanoes, their physical features, their lava types, and some examples
- What are the different volcanic landforms?
- What are the different types of lava?
- What are the different types of pyroclastic deposits?

➤ **Earthquakes (Chapter 10)**

- What is an earthquake?
- What is seismology?
- Why and where do earthquakes occur?
- What is the difference between a seismometer, a seismograph, and a seismogram?
- Know the difference between hypocenter and epicenter.
- Know what a fault is and the various types of faults (reverse, normal, strike-slip).
- What are aftershocks? What are foreshocks?
- How are P and S waves different? (velocity and particle motion)
- How do we use P and S waves to locate an earthquake?
- What factors can contribute to destruction due to earthquakes?

➤ **Seeing Inside the Earth (Interlude C)**

- How thick is Earth's crust beneath continents and oceans? (two different values)
- What is the Moho?
- What is a shadow zone?