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

STUDY GUIDE FOR EXAM #3

In this first part of the course, we covered the Chapters 12-16, and Interludes D and E. 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.

➤ **Fossils and Evolution (Interlude D)**

- Know the different types of fossils and examples of each
- What is an index fossil?
- What is the phylogenetic tree?
- What is the principle of fossil succession?
- What factors may cause extinctions?

➤ **Deep Time (Chapter 12)**

- Know the difference between absolute and relative dates, and how they're determined.
- Know the basics of radioactivity as discussed in class
- Know each type of unconformities (each type)
- Understand how we correlate stratigraphic layers
- What is the law of superposition?
- Know the principles of original horizontality, cross-cutting relationships, inclusions, and baked contacts

➤ **Biography of Earth (Chapter 13)**

- How do we study the past?
- How do mountains form?
- Know how the total area of continents on Earth evolved over geologic time
- What are cratons?
- What is transgression and regression?
- Why do sea levels change over time?

➤ **Energy Resources (Chapter 14)**

- What is the difference between renewable and nonrenewable resources?
- Name 3 different fossil fuels.
- What is the largest use for coal? (electricity)
- Know 6 potential alternate energy resources (nuclear, solar, wind, hydroelectric, geothermal, wind).
- What is porosity? Permeability? How do they relate to storage of fossil fuels?

➤ **Mineral Resources (Chapter 15)**

- How do ore deposits form?
- What are pegmatites?
- What are disseminated deposits?
- What type of rock carries diamonds to the surface?

➤ **Hydrologic Cycle and Landscape Development (Interlude E)**

- Know the top 3 locations of water on Earth (oceans, glaciers and polar ice, groundwater)
- Know what powers the hydrologic cycle (solar energy)
- What is the difference between elevation and relief?
- How do the shapes of valleys correspond to the volume and velocity of water that form them?
- How does plate tectonics affect landform development?

➤ **Mass Wasting (Chapter 16)**

- Know the controlling force of mass wasting (gravity)
- Know the important factors in mass wasting (water saturation, angle of repose, vegetation, earthquakes)
- Review the types (fall, slide, flow) and rates of movement (e.g., creep compared to rock avalanche)
- Understand the different types of mass wasting and their causes (e.g., creep, slump, rock avalanche, mud flow, rock slide, debris flow, debris avalanche)
- Know the effects of deforestation on mass wasting
- Understand the difference in stability for rock layers parallel and perpendicular to slopes