

Study Guide for Exam 1 on September 27, 2006
Earth Science 101-80

The exam covers all class material from August 21 through September 20, including reading assignments, laboratory exercises, and lecture notes.

Reading assignments from the textbook includes

- Chapter 1
- Chapter 16, pages 448-450
- Chapter 21-22
- Chapter 23, pages 640-643 and 649-655

Major Topics (see also Content Objectives on page three of the syllabus).

- Understand the nature of scientific inquiry and the scientific method
- Distinguish between the three methods of heat transfer (conduction, convection, radiation). Understand energy, heat, and temperature.
- Understand that visible light (ROYGBIV) is part of the electromagnetic spectrum and the relationship between wavelength and energy
- Be able to convert English and metric units (you will be given any necessary values)
- Distinguish between positive and negative feedback mechanisms
- Know the age and origin of the universe and evidence for the Big Bang Theory
- Know the age and origin of the Solar System and the Earth in the nebular hypothesis
- Understand the two main energy sources for the Earth (solar energy and interior heat) and how these drive natural phenomena
- Know the basic layered structure of Earth's interior; plate tectonics
- Know differences between continental and oceanic crust
- Distinguish between renewable and nonrenewable energy sources
- Understand how Earth-Sun-Moon relationships give us days, seasons, years, months, eclipses
- Know how latitude is measured and how longitude is determined with or without a globe
- Distinguish between sidereal and synodic periods
- Understand that impact cratering is the dominant geologic process on many objects (Moon, Mercury, etc) and how craters give an indication of surface age
- Identify leading theory for Moon formation; distinguish between two lunar terrains
- Match Renaissance scientists with their contribution to science
- Distinguish between Ptolemaic and Copernican views of the Solar System
- Understand that orbits are ellipses and that orbital periods are proportional to distance; know how eccentricity and inclination affect the orbit
- From orbital position, be able to determine whether a planet is visible in the night sky
- Know basic structure and content of Solar System: major planets, satellites, asteroids, minor planets, comets (you will be given the information on the planetary data sheet)
- Identify compositional trends in planetary bodies (ice, rock, gas)
- Know differences between terrestrial planets (Mercury, Venus, Earth, Mars)
- Understand what major processes operate on planet surfaces: volcanism, impacts, weather, etc.
- Know basic properties of the gas giant planets and differences between them
- Identify the major satellites in the Solar System; their differences and similarities
- Understand composition of comets; their two main reservoirs and orbital behavior