Teacher : Morso iLhem **Geology students.**

Part one

1. What is Geology

The word geology means 'Study of the Earth'.

Also known as geoscience or earth science, Geology is the primary Earth science and looks at how the earth formed, its structure and composition, and the types of processes acting on it.

Geology is concerned with the history of the earth over the course of its 4.5 billion year life. By studying the structures of the earth we can unlock its hidden past and anticipate its future.

2. Geology Faculty and Staff

Members of the Appalachian State University Department of Geology faculty have diverse interests, experiences, educations, and geographic origins, but they are all committed to undergraduate education. The faculty has grown and changed in the pastfour years as founding members of the Department faculty have retired and new facultymembers have been hired. All of the geology faculty teach introductory courses, as wellas courses for majors and minors, so majors may begin work with senior faculty early intheir career. The photo below shows many of the faculty members of the Department ofGeology for 2008-09.

3. Geology Students

10 Reasons to Become a Geologist .

The top ten reasons you should be a geology student are:

- You are concerned about the environment.
- Having a sufficient and good knowledge of geology-related science.
- You wonder why the Earth appears as it does.
- You like the outdoors.
- You don't want a desk job.

- You have a sense of adventure and a spirit of discovery.
- You enjoy solving puzzles and problems.
- You enjoy using computer technology to solve practical problems.

- desire a lucrative career doing something you

  actually like doing.

- Taking notes: Use abbreviations, acronyms, or incomplete sentences to record information to speed up the notetaking process. Write down only the information that answers your research questions. Use symbols, diagrams, charts or drawings to simplify and visualize ideas.

4. Why Study Earth?

Why? Because Earth is our home — our *only* home for the foreseeable future — and in order to ensure that it continues to be a great place to live, we need to understand how it works. Another answer is that some of us can't help but study it because it's fascinating. But there is more to it than that.

- We can study rocks and the fossils they contain to understand the evolution of our environment and the life within it.
- We can learn to minimize our risks from earthquakes, volcanoes, slope failures, and damaging storms.
- We can learn how and why Earth's climate changed in the past, and use that knowledge to understand both natural and human-caused climate change.
- We rely on Earth for resources such as soil, water, metals, industrial minerals, and energy, and we need to know how to find these resources and exploit them sustainably.
- We can recognize how human activities have altered the environment, and learn how to prevent and sometimes repair the damage.
- We can use knowledge of Earth to understand other planets in our solar system, and those around distant stars.

5. We Study Earth Using the five Scientific Methods

Here are the five steps.

- Define a Question to Investigate. As scientists conduct their research, they make observations and collect data. ...
- Make Predictions. Based on their research and observations, scientists will often come up with a hypothesis. ...
- Gather Data. ...
- Analyze the Data. ...
- Draw Conclusions.

An Example of the Scientific Method at Work

We might hypothesize that the rocks were rounded because as the stream carried them, they crashed into each other and pieces broke off. If the hypothesis is correct, then the further we go downstream, the rounder and smaller the rocks should be.

Part two

Basic Geology Concepts.

Crystallography: study of the chemistry and atomic arrangement of atoms in minerals.

Earth System Science: study of the interaction of oceans, atmosphere, and the solid earth for the purpose of understanding past, present, and future environmental conditions.

Economic Geology: genesis, location, and other aspects of economic materials; includes metallic, non-metallic (industrial rocks and minerals), and groundwater supplies (location and occurrence of subsurface water).

Environmental Geology: geological study of our natural environment; primarily concerned with depletion of natural resources, preservation of environmental quality, pollution problems, and natural hazards.

Field Geology: collection, interpretation, and synthesis of geological data in the field (outside, in nature); generally consists, at least in part, of making geologic maps
Forensic Geology: interpretation of geological evidence at crime scenes.

Geoarcheology: geological interpretation of archeological sites.

Geochemistry: study of chemical processes within, upon and above the earth.

Geochronology: study of the timing of geologic events; usually involves absolute age determinations.

Geoinformatics: utilization of computers and data retrieval storage equipment for simulation, analysis and synthesis of geological data.

Geomorphology: origin and description of land forms.

Geomorphometry: the measurement of various rates of landscape-forming processes.

Geophysics: "the study of the physics of the earth" **-** includes Seismology (study of earthquakes) and other studies of physical properties.

Hydrogeology: the study of subsurface waters (groundwater) and the related geologic aspects of surface waters.

Hydrology: study of the movement of water in and on the earth; flood hazard is a primary concern.

Marine Geology: study of various aspects of the geology of the oceans and coastal areas.

Mineralogy: study of crystal structure and chemistry, identification, classification and genesis of minerals.

Optical Mineralogy: study of mineral properties through means of light transmitted through minerals; uses a petrographic microscope.

Paleontology: the study of ancient life (fossils) - includes, paleobotany (plants); vertebrate paleontology (animals with backbones); invertebrate paleontology (animals without backbones); micropaleontology (microscopic-sized fossils); and palynology (spores and pollen).

Petrography: description of mineralogy, texture and structure of rocks.

Petrology: study of rocks, including information on chemistry; classification; mineralogy, occurrence, shape and structure of rock masses (petrography), and rock origins (Petrogenesis).

Planetology: study of the planets, including the origin of their rocks and development of planetary structures, includes Lunar Geology, the geology of the moon.

Photogeology: utilization of aerial photographs (and other indirect or remote sensing techniques) to determine various aspects of geology. Term now largely replaced by Remote Sensing.

Sedimentology: study of the environmental factors controlling the origin of sediments and sedimentary rocks; development of depositional models.

Stratigraphy: the study of layered (sedimentary) rocks, with emphasis on their relationships to each other with respect to time and origin.

Structural Geology: the origin of geological features produced by stresses within the earth's crust (such as folds and faults).

Tectonics: large-scale or world-wide aspects of structural geology; generally involves origin of mountain ranges, ocean basins, continents, etc.