



**University of Mosul**  
**College of Science**  
**Department of Geology and petroleum**  
**Research directions**



**Research directions of the Department of Geology and petroleum:**

Geology is a science that specializes in studying earth sciences and their applications in various fields. Earth science aims to provide a deep and applied understanding of geological, geophysical, geochemical, and environmental processes and to apply this knowledge to solve scientific and applied problems related to the Earth and its resources.

**Geology includes many specializations, including:**

**Economic Geology:** Economic geology is an important branch of geology that is concerned with studying the various aspects of economic minerals that humans use to meet their various needs. Economic minerals can be defined as minerals that are profitably extracted from the earth. Geologists specializing in this branch identify and manage the natural resources of Earth, such as oil and coal, in addition to raw mineral resources, such as iron, copper, and uranium.

**Mining Geology:** Mining geology involves extracting mineral resources from the earth. It includes many resources of economic importance, such as gemstones, precious metals, such as gold and copper, and minerals, such as asbestos, mica, phosphate, zeolite, clay, pumice, quartz, and silica, in addition to elements, such as sulfur, chlorine, and helium.

**Petroleum Geology:** Petroleum geologists study underground locations that may contain extractable hydrocarbons, especially petroleum and natural gas. Sedimentary basins are also studied, as they are considered reservoirs for hydrocarbons. The formation of these basins is studied in addition to their sedimentary and tectonic development and the current locations of sedimentary rock units.

**Engineering Geology:** It applies geological principles to engineering practice to ensure that geological factors affecting the location, design, construction, operation, and maintenance of engineering works are properly addressed.

**Hydrology and Environmental Issues:** Geology can be applied to various environmental problems, such as restoring the electricity supply and understanding the relationship between nature and the geological environment. Groundwater hydrology (hydrogeology) allows for the location of groundwater that can be used to provide a quantity of uncontaminated water resources, which is very important in dry regions.

**Geophysics** is the science that studies the various geological layers and structures beneath the Earth's surface, as well as invisible structures that could contain materials of economic value.

**Geomorphology** is focused on studying topography (such as mountains, plains, valleys, rivers, deserts, and coasts) and the reasons for their development over time.