

Fully Funded PhD Scholarships in Earth Sciences at Khalifa University, Department of Earth Sciences

The Department of Earth Sciences at Khalifa University of Science and Technology, Abu Dhabi, UAE, is seeking highly motivated applicants for doctoral degrees in Earth Sciences. PhD research projects are available across the following research themes Climate and Environmental Sciences, Earth History and Geobiology, Geochemistry and Dynamics of Earth, Natural Resources and Geoenergy, Planetary Science and Astrobiology, and Polar Research. Details of the Research Themes can be found at: <https://www.ku.ac.ae/academics/college-of-arts-and-sciences/department/department-of-earth-sciences#research>.

Individuals wishing to apply are strongly encouraged to review faculty research profiles and contact individual faculty concerning their prospective application. Please Reference Specific Projects (details below)

Details of Departmental faculty and their research can be found at: <https://www.ku.ac.ae/academics/college-of-arts-and-sciences/department/department-of-earth-sciences>

Details of the BsC to PhD (5 year) and MsC to PhD (4 year) programs can be found at: <https://www.ku.ac.ae/program/phd-in-earth-sciences>

Requirements:

Candidate should have BsC or MSc degree in Geoscience, Earth Science or a related field.

Application and details of minimum requirements for application can be found at <https://www.ku.ac.ae/admissions/graduate-admissions/>

Details of the Scholarships offered to study at Khalifa University can be found at <https://www.ku.ac.ae/scholarships-postgraduate#international-students>

Please pay close attention to admissions criteria details. Applications that do not meet the minimum criteria will be rejected.

The deadline for Admission for Fall 2025 is April 14th, 2025

PhD Projects in Polar Research

- Title:** Assessing the role of extreme weather events on cryospheric changes
Keywords: Polar ice, polar meteorology, sea ice, glacier dynamics, glacier melt.
Research Theme: Polar Research and Climate and Environmental Science
Primary Supervisor: Dr Diana Francis (<https://www.ku.ac.ae/college-people/diana-francis>)
- Title:** The Bathonian–Callovian Boundary in the Arctic Record
Keywords: Jurassic, elemental geochemistry, stable isotope geochemistry, geochronology, biostratigraphy, biogeochemical cycling, climate change
Research Theme: Polar Research, Earth History and Geobiology, Climate and Environmental Science, Geochemistry and Dynamics of Earth
Primary Supervisor: Dr. Aisha Al Suwaidi (<https://www.ku.ac.ae/college-people/aisha-al-suwaidi>)
- Title:** A World in Flux: Exploring the Polar record of Triassic Climate Change
Keywords: Triassic, elemental geochemistry, stable isotope geochemistry, geochronology, biostratigraphy, biogeochemical cycling, climate change
Research Theme: Polar Research, Climate and Environmental Science, Geochemistry and Dynamics of Earth, Earth History and Geobiology,
Primary Supervisor: Dr. Aisha Al Suwaidi (<https://www.ku.ac.ae/college-people/aisha-al-suwaidi>)
- Title:** Evolution of silicate weathering on land as a marker for Late Triassic to Early Jurassic climate dynamics: A record from the Polar Regions
Keywords: Silicate weathering, climate dynamics, clay mineralogy, clay mineral stable isotope geochemistry, elemental geochemistry, stable isotope geochemistry, Triassic, Polar Region
Research Theme: Earth History and Geobiology, Polar Research, Climate and Environmental Science, Planetary Science and Astrobiology
Primary Supervisor: Dr. Frantz Gerard Ossa Ossa (<https://www.ku.ac.ae/college-people/frantz-gerard-ossa-ossa>)
- Title:** Deciphering the Earth's Early Mantle Evolution
Keywords: Early Earth, Mantle Evolution, Geochemistry, Isotopes, Geodynamics
Research Themes: Polar Research, Geochemistry and Dynamics of Earth
Primary Supervisor: Dr. Hamed Gamaleldien (<https://www.ku.ac.ae/college-people/hamed-gamaleldien>)
- Title:** Investigation of polar processes and associated features on Mars
Keywords: Mars, ice, polar processes, glacial, landforms, seasonal
Research Theme: Planetary Science and Astrobiology/Polar Research
Primary Supervisor: Dr. Mohamed Ramy El-Maarry (<https://www.ku.ac.ae/college-people/mohamed-ramy-el-maarry>)

PhD Projects in Climate and Environmental Sciences

- Title:** Characteristics and distribution of microplastics in the mangrove sediments of the Abu Dhabi coast
Keywords: Natural environments, mangrove sediments, microplastics, human health
Research Theme: Climate and Environmental Sciences
Primary Supervisor: Dr. Andrea Ceriani (<https://www.ku.ac.ae/college-people/andrea-ceriani>)
- Title:** Study of dust storms and air quality in the Middle East
Keywords: Air pollution, atmospheric composition, satellite observations, atmospheric dispersion

Research Theme: Climate and Environmental Science

Primary Supervisor: Dr Diana Francis (<https://www.ku.ac.ae/college-people/diana-francis>)

3. **Title:** AI-enabled High-resolution weather forecast and climate modelling
Keywords: Weather forecast, machine learning, deep learning, climate models, bias correction.
Research Theme: Climate and Environmental Science
Primary Supervisor: Dr Diana Francis (<https://www.ku.ac.ae/college-people/diana-francis>)
4. **Title:** Modern subtidal sediments of the southeastern Arabian Gulf
Keywords: carbonate sedimentology, extreme marine environments, climate change, ocean acidification
Research Theme: Climate and Environmental Science, Sedimentology, Micropaleontology
Primary Supervisor: Prof. Thomas Steuber (<https://www.ku.ac.ae/college-people/thomas-steuber>)
5. **Title:** Late Quaternary sea-level and climate change as an analogue for future evolution of the Abu Dhabi coastline
Keywords: Late Quaternary, stable isotope geochemistry, geochronology, climate change, sea-level change
Research Theme: Climate and Environmental Science, Geochemistry and Dynamics of Earth
Primary Supervisor: Prof. Thomas Steuber (<https://www.ku.ac.ae/college-people/thomas-steuber>)
6. **Title:** Arabian Gulf Outflow impact on the Arabian Sea Minimum Zone
Keywords: oceanography, elemental geochemistry, stable isotope geochemistry, biostratigraphy, biogeochemical cycling, climate change, ocean oxygenation
Research Theme: Climate and Environmental Science, Geochemistry and Dynamics of Earth
Primary Supervisor: Dr. Aisha Al Suwaidi (<https://www.ku.ac.ae/college-people/aisha-al-suwaidi>)

PhD projects in Earth History and Geobiology

1. **Title:** Sequence stratigraphy and isotopic constraints onto the geodynamic evolution of the Paleozoic southern Arabic Peninsula.
Keywords: Paleozoic paleogeography, provenance, geochronology, heavy minerals
Research Theme: Earth History and Geobiology, Geochemistry and Dynamics of the Earth
Primary Supervisor: Dr. Andrea Ceriani (<https://www.ku.ac.ae/college-people/andrea-ceriani>)
2. **Title:** Biological active soils and nutrient mobilisations under cooling climatic conditions: A comparative study between paleosol profiles associated with snowball Earth's events and modern soils in high-latitude regions
Keywords: Biological active soils, extreme climates, snowball Earth, clay mineralogy, clay mineral stable isotope geochemistry, elemental geochemistry, stable isotope geochemistry, modern high-latitude regions, Precambrian records
Research Theme: Earth History and Geobiology, Polar Research, Climate and Environmental Science, Planetary Science and Astrobiology
Primary Supervisor: Dr. Frantz Gerard Ossa Ossa (<https://www.ku.ac.ae/college-people/frantz-gerard-ossa-ossa>)

PhD projects in Planetary Science and Astrobiology

1. **Title:** Investigating global trends in desiccation-like polygons on Mars
Keywords: Mars, polygons, desiccation, climate, water, habitability
Research Theme: Planetary Science and Astrobiology
Primary Supervisor: Dr. Mohamed Ramy El-Maarry (<https://www.ku.ac.ae/college-people/mohamed-ramy-el-maarry>)

PhD Projects in Geochemistry and Dynamics of Earth

1. **Title:** Orogenic Gold Deposits in Somaliland
Keywords: Precambrian, Nubian Shield, Gold, Somaliland, Natural Resources
Research Theme: Geochemistry and Dynamics of Earth, Earth History & Geobiology
Primary Supervisor: Prof. Mohammed Ali (<https://www.ku.ac.ae/college-people/mohammed-ali>)
2. **Title:** Tectonic assessment of the Northern to Central Red Sea Transition
Keywords: Rifted margins, Red Sea, Tectonics
Research Theme: Geochemistry and Dynamics of Earth
Primary Supervisor: Dr. Alessandro Decarlis (<https://www.ku.ac.ae/college-people/alessandro-decarlis>)
3. **Title:** Geodynamics implications of cyclic lithospheric excisure: from mountain belt formation, to orogenic collapse, to narrow rifting.
Keywords: Tectonics, Wilson cycle, Lithospheric structure.
Research Theme: Geochemistry and Dynamics of Earth
Primary Supervisor: Dr. Alessandro Decarlis (<https://www.ku.ac.ae/college-people/alessandro-decarlis>)
4. **Title:** Evolution of the Precambrian terranes of Somaliland
Keywords: Precambrian, Arabian-Nubian Shield, Gondwana, Somaliland, geochronology, biostratigraphy, biogeochemical cycling, climate change
Research Theme: Geochemistry and Dynamics of Earth, Earth History & Geobiology
Primary Supervisor: Prof. Mohammed Ali (Khalif University, <https://www.ku.ac.ae/college-people/mohammed-ali>) and Prof. Martin Whitehouse (Swedish Museum of Natural History)
5. **Title:** Tectono-stratigraphy evolution of the Gulf of Aden
Keywords: Rift, Ocean-Continental Transition, seafloor spreading, crustal structure
Research Theme: Geochemistry and Dynamics of Earth, Earth History & Geobiology
Primary Supervisor: Prof. Mohammed Ali (<https://www.ku.ac.ae/college-people/mohammed-ali>)

PhD Projects in Natural Resources and Geoenergy

1. **Title:** Machine Learning Joint Inversion of Potential Field and Seismic Data for Near-Surface Exploration
Keywords: Seismic and potential data, joint inversion and interpretation.
Research Theme: Natural Resources and Geoenergy
Primary Supervisor: Dr. Fateh Bouchaala (<https://www.ku.ac.ae/college-people/fateh-bouchaala>)
2. **Title:** Monitoring Carbon Dioxide Capture and Storage Using Geophysical and Machine Learning Methods
Keywords: Viscoelastic, machine learning, sealing formation, and fractures.
Research Theme: Natural Resources and Geoenergy, Climate and Environmental Science
Primary Supervisor: Dr. Fateh Bouchaala (<https://www.ku.ac.ae/college-people/fateh-bouchaala>)

3. **Title:** Machine Learning–Based Study of Seismic Wave Attenuation.
Keywords: Seismic attenuation, machine learning, fluids, and fractures.
Research Theme: Natural Resources and Geoenergy
Primary Supervisor: Dr. Fateh Bouchaala (<https://www.ku.ac.ae/college-people/fateh-bouchaala>)
4. **Title:** Linking ophiolitic melange and subduction with critical metals
Keywords: Ophiolites, Critical Metals, Subduction Zones, Geochemistry, Mineral Resources
Research Themes: Natural resources and geoenergy, Geochemistry and Dynamics of Earth
Primary Supervisor: Dr. Hamed Gamaleldien (<https://www.ku.ac.ae/college-people/hamed-gamaleldien>)
5. **Title:** Exploring the role of mantle plumes and supercontinental cycle in the formation of Critical Metals
Keywords: Mantle Plumes, Supercontinental Cycle, Critical Metals, Geodynamics, Mineral Resources
Research Themes: Natural resources and geoenergy, Geochemistry and Dynamics of Earth
Primary Supervisor: Dr. Hamed Gamaleldien (<https://www.ku.ac.ae/college-people/hamed-gamaleldien>)
6. **Title:** Geologic and Mineralogical Characterization of Sir Bu N'air Island's Salt Dome: Geochemistry, Uplift Dynamics, and Resource Assessment
Keywords: Sir Bu N'air, salt dome, geochemistry, mineral resources, geologic mapping, uplift rate, age dating
Research Themes: Natural Resources and Geoenergy; Geochemistry and Dynamics of Earth
Primary Supervisor: Dr. Mohammad Alsuwaidi (<https://www.ku.ac.ae/college-people/mohammad-alsuwaidi>)
7. **Title:** Geochemical and Stratigraphic Analysis of the K-T Boundary in the UAE: Insights from Sequence and Biostratigraphy
Keywords: K-T boundary, geochemistry, sequence stratigraphy, biostratigraphy, UAE, Melaiha, mass extinction
Research Themes: Natural Resources and Geoenergy, Geochemistry and Dynamics of Earth
Primary Supervisor: Dr. Mohammad Alsuwaidi (<https://www.ku.ac.ae/college-people/mohammad-alsuwaidi>)



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Khalifa University