ExploreTerra

Unearth Your Energy Potential

Training

GEOCHEMISTRY SERIES

The course is designed for professionals who want a solid foundation in Geochemistry. It covers fundamental principles and applications, such as elemental cycles, isotopic composition, and interactions between geological materials and environmental processes

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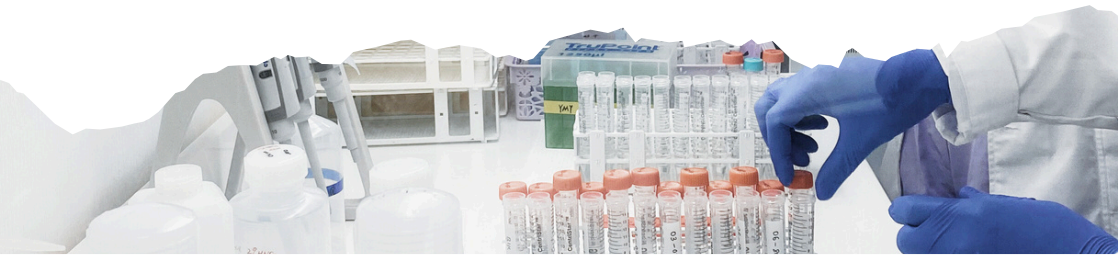
WELCOME!

The course is designed for professionals who want a solid foundation in Geochemistry. It covers fundamental principles and applications, such as elemental cycles, isotopic composition, and interactions between geological materials and environmental processes. Gain a deep understanding of these principles through a combination of theoretical insights and practical examples.

This course is ideal for both experienced geoscientists and newcomers to the field. It provides comprehensive knowledge for informed decision-making in geological and environmental contexts.



SCOPE

- **Duration:** 25 hours
- **Price per student:**
  Relative to instruction level.
  $1200 Basic, $1600 Advanced
- **Target Audience:** Geoscientists, chemists, environmentalist and business leaders interested in learning the principles of geochemistry and the element cycles.
- **Focus areas**: Stable isotopes, element cycle, Earth Surface Systems
- **Format:** This course will blend theoretical discussions with practical. No experience required, basic knowledge is preferred.
- **Type or training:** Remote or in person.
- **Maximum number of students**: 20
- **Languages:** Available in English or Spanish

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CONTENT

Session 1: Introduction to Geochemistry

- Fundamental concepts
- Historical development
- Scope and significance in Earth System Processes

Session 2: Principles of Elemental Composition

- Distribution and abundance of elements
- Key tools for analysis

Session 3: Isotopic Geochemistry

- Isotopic fractionation
- Radiogenic and stable isotopes
- Dating of geological materials

Session 4: Geochemical cycling

- Element cycling
- Biogeochemical cycles
- Cycle interaction

Session 5: Trace Elements and their Signatures

- Indicators of geological processes and environmental conditions
- Transition metals signatures

Session 6: Geochemistry of minerals

- Role of minerals in geological processes
- High and low temperature processes (focus on Cu)

CONTENT

Session 7: Organic Geochemistry

- Distribution and transformation of organic compounds (focus on carbon cycle)

Session 8: Aquatic Geochemistry

- Weathering
- Water-rock interactions
- Aqueous speciation

Marine Geochemistry (nivel 2)

Session 1: Introduction to Geochemistry

- Fundamental concepts
- Distribution and abundance of elements
- Isotope stability and radioactive decay
- 238-U series in seawater
- Isotope-isotope relations (234Th/238U disequilibrium)

Session 2: Atmosphere-ocean formation

- Formation of solar system
- Isotope evidence of early atmosphere/ocean formation
- Atmospheric structure
- Wind-driven circulation

Session 3: Biogenic components and ocean evolution

- Balance of fluxes in the ocean
- Accumulation rates of organic matter, biogenic silica and carbonate
- Ocean distributions
- Paleothermometry: Ca-isotopes

CONTENT

Session 4: Seawater composition

- Major ions
- Salinity
- Sr-isotopes
- Alkalinity
- Carbonate systematics (precipitation and dissolution)

Session 5: Oceanic mass balance

- Hydrothermal systems
- Rivers and groundwater
- Atmosphere-ocean interactions
- Introduction to S-cycling

Session 6: Water column processes and biogeochemical cycling

- Organic matter formation and depletion
- Particle sinking, scavenging and remineralization
- Introduction to the organic matter cycle (C-N-P)
- Marine organisms and phytoplankton

Session 7: Dissolved organic carbon

- Ocean profile gradients
- Water column processes
- DOC transportation
- Radiocarbon age of DOC

CONTENT

Session 8: Early diagenesis and sedimentary processes

- Denitrification
- Oxygenation
- Benthic fluxes

Session 9: Global biochemical cycles: C-cycling

- Carbon oxidation in anoxic sediments
- Carbon burial
- Carbon preservation

Session 10: Global biochemical cycles: P-N-S

- P-cycle
- N-cycle
- C-S redox reactions over Oxygen
- Implications of the anthropogenic CO2

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ABOUT **COMPANY**

ExploreTerra's vision is to contribute to the geoscience consultancy and training landscape. Our core purpose is to establish a dynamic platform that creates connections between available talent and opportunities or needs within the energy industry.

We are dedicated to enriching the energy sector through specialized services and empowering geoscientists with technical training, tailored technology transfer, and the adoption of integrated, multidisciplinary best practices.

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YOUR INSTRUCTORS

Ana Vasquez, PhD

Chief Scientific Officer

Ana C. Vasquez is a geochemist and marine advisor. Holds a PhD in marine sciences, focused on stable isotopes. Ana has over 15 years' experience in climate change mitigation, resilience and environmental impact assessments.
Ana is member of several scientific associations, including ASLO, WOS, OceanExpert, GeoLatinas, EAG, DOSI, AGU.

Nur Sakinah Abdul Razak

Marine Scientist and Foraminifera Expert

Nur Sakinah is doctoral researcher in Marine Sciences at the State Key Laboratory of Marine Geology, Tongji University. Sakinah is expert in marine geochemistry and environmental changes, focused on carbon cycle.

GET
IN TOUCH

Our training programs, designed by seasoned geoscientists, are tailored to meet contemporary industry needs.

We prioritize technical and core skill enhancement and the incorporation of advanced technologies, equipping professionals for the dynamic field of geoscience.

CONTACT US :

ana.vasquez@exploreterra.net

*www.*exploreterra.net

contact@exploreterra.net

explore.terra.energy

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