Course Specifications
Valid in the academic year 2019-2020

Geochemistry (C002266)

Due to Covid 19, the education and evaluation methods may vary from the information displayed in the schedules and course details. Any changes will be communicated on Ufora.

Lecturers in academic year 2019-2020

- Bertrand, Sebastien
  WE13 lecturer-in-charge
- Dewaele, Stijn
  WE13 co-lecturer

Course offerings and teaching methods in academic year 2019-2020

A (semester 2) Dutch UGent
- on campus seminar 20.0 h
- on campus lecture 25.0 h

Offered in the following programmes in 2019-2020

Bachelor of Science in Chemistry
- crdts 5
- offering A

Teaching languages

Dutch

Keywords

Geochemistry, chemistry of the natural environment

Position of the course

The role of chemical processes in the evolution of the Earth is elucidated. It is indicated to which extent chemical data and concepts contribute to a better understanding of geological processes.

Contents

- Calculation of chemical equilibrium at geologically relevant conditions of temperature and pressure.
- Oxidation-reduction reactions
- Chemical speciation : pH-Eh and pH-fO2 predominance diagrams.
- Trace element fractionation during magmatic differentiation: partition coefficients and model calculations.
- Meteorites as reference frame for a study of the chemical differentiation of the Earth and Moon.
- Formation of the elements and isotopes, and their distribution among geochemical reservoirs.
- Influence of solubility and weathering of minerals on the chemical composition of natural waters.
- The chemical composition of seawater.
- Introduction to organic geochemistry, including biomarkers.
- Basic concepts of the geochemical cycles of C and N.
- Analytical techniques in geochemistry.

Initial competences

Basic knowledge of: general chemistry and physics, analytical chemistry, structure and composition of the Earth, endogenetic and exogenetic geological processes. The student should have successfully followed the course General Chemistry or equivalent.

Final competences

1. The student shows insight in the Earth's chemistry.
2. He/she can apply theoretical geochemical concepts to practical problems.
3. He/she can establish links between Geochemistry and other branches of Earth Sciences such as Petrology, Mineralogy, Isotope Geology, Geodynamics and sedimentology.

Course size (nominal values; actual values may depend on programme)

Credits 5.0 Study time 150 h Contact hrs 45.0 h

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(Approved)
Conditions for credit contract
Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract
This course unit cannot be taken via an exam contract

Teaching methods
On campus lecture, on campus seminar

Learning materials and price
Lecture notes (in Dutch,) made available at no cost at digital Learning Platform.

References

Course content-related study coaching
Practical exercises: development of skills to solve problems; intensive support during practical sessions.  
Individual guidance by lecturer or co-workers (by appointment).

Evaluation methods
end-of-term evaluation and continuous assessment

Examination methods in case of periodic evaluation during the first examination period
Written examination with open questions

Examination methods in case of periodic evaluation during the second examination period
Written examination with open questions

Examination methods in case of permanent evaluation
Assignment, report

Possibilities of retake in case of permanent evaluation
examination during the second examination period is not possible

Calculation of the examination mark
Theoretical exam: 70% (2 parts)  
Exercises exam: 15% (problems as during the practicals and exercise sessions).  
Article presentation and discussion: 15% (NPE)