Sedimentary Geochemistry (C003958)

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.

Course
Specifications
Valid as from the academic year 2019-2020

Course size  (nominal values; actual values may depend on programme)
Credits  4.0 Study time  120 h Contact hrs  40.0 h

Course offerings and teaching methods in academic year 2019-2020
A (semester 1) English UGent on campus seminar  3.75 h
on campus group work  3.75 h
practicum  12.5 h
on campus lecture  20.0 h

Lecturers in academic year 2019-2020
Bertrand, Sebastien WE13 lecturer-in-charge

Offered in the following programmes in  2019-2020
Bachelor of Science in Geology  4  A
Preparatory Course Master of Science in Geology  4  A

Teaching languages
English

Keywords
Geochemistry, Chemistry of the natural environment, Stable isotopes

Position of the course
This course provides the student with a thorough understanding of the principles, methods and applications of sedimentary geochemistry, including stable isotopes. It focuses on (1) the processes that affect the geochemical composition of the Earth surface, and (2) understanding how these processes can be traced using geochemical data. Students are also trained in solving geological problems using geochemical data.

Contents
• Chemical weathering
• Chemical composition of rainwater, river water and seawater
• Influence of weathering of minerals on the chemical composition of natural waters
• Introduction to organic geochemistry, including biomarkers
• Geochemical cycles of C and N
• Fractionation of stable isotopes (C, H, O, N): processes and applications
• Analytical techniques in geochemistry

Initial competences
Basic knowledge of general chemistry, physics, and analytical chemistry. The student should have passed General Chemistry (or equivalent), Introduction to mineralogy, and Earth System: Geology.
Students must have followed “Sedimentology” (2Ba Geology), or they should follow it in parallel.

Final competences
1 The student shows insight into the chemistry of the Earth surface.
2 He/she can apply geochemical theoretical concepts to solve practical problems.
3 He/she is able to select the most appropriate geochemical method(s) to answer a specific problem and he/she knows the limits of the different techniques.
4 He/she can synthesize a geochemistry-oriented scientific article and present the results.
5 He/she can make connections between Geochemistry and other branches of Geology, such as Sedimentology.

(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 group work, on campus lecture, practicum, on campus seminar

Learning materials and price
Course notes and Powerpoint slides available on Ufora.

References

Course content-related study coaching
Theory: discussions over potential questions and problems during and after the lectures. Answers to questions via the discussion forum on Ufora. Exercises under the guidance of the lecturer and assistants.

Evaluation methods
end-of-term evaluation

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

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

Examination methods in case of permanent evaluation

Possibilities of retake in case of permanent evaluation
not applicable

Calculation of the examination mark
Theory: exam at the end of the semester (70% of final score)
Exercises: exam at the end of the semester (20% of final score)
Presentation and discussion of a scientific article (10% of final score)