Course Specifications
Valid as from the academic year 2020-2021

Analytical Chemistry (C002138)

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 size: (nominal values; actual values may depend on programme)
- Credits: 7.0
- Study time: 200 h
- Contact hrs: 75.0 h

Course offerings and teaching methods in academic year 2020-2021

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<th>A (semester 2)</th>
<th>Dutch</th>
<th>Gent</th>
<th>online seminar:</th>
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<td>coached exercises</td>
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<td>seminar: coached exercises</td>
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<td>online lecture</td>
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<td>online demonstration</td>
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Lecturers in academic year 2020-2021

Adriaens, Mieke
WE06 lecturer-in-charge

Offered in the following programmes in 2020-2021

Bachelor of Science in Geology

Teaching languages

Dutch

Keywords

Chemical analysis, volumetry, gravimetry, spectrometry

Position of the course

This course attempts to provide a concise overview of the principles on which most important analytical methods in geology are based. The development of skills such as problem solving and critical evaluation of analysis results receive a lot of attention.

Contents

- Introduction to analytical chemistry
- What is analytics chemistry?
- Evaluation of analytical data
- Sampling and sample preparation
- Volumetric methods
- Spectroscopic methods
  - Methods based on the interaction with electromagnetic radiation (UV/VIS, AAS, ICP-AES and XRF)
  - Mass spectrometric methods (TIMS and LA-ICPMS)
  - Beam methods (SEM-EDS/WDS and SIMS)

Initial competences

Followed the courses "Chemistry I and II" and "Physics I and II" or having obtained the expected competences in another way.

Final competences

1. To know the common analytical methods, equipment and data processing.
2. To have insight into the possibilities and limitations of common analytical methods for the determination of main and trace components (mainly elements) in geological samples.
3. The student develops the following attitudes: problem solving thinking and critical evaluation of analytical results obtained by him/herself or others.

Conditions for credit contract

(Approved)
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
Lecture, practicum, seminar: coached exercises, online demonstration, online lecture, online seminar: coached exercises.

Extra information on the teaching methods
Due to COVID19 alternate teaching methods may be implemented should these prove necessary.

Learning materials and price
Dutch lecture notes (estimated cost 20 Euro).

References

Course content-related study coaching
Answering questions via email, after lectures or during personal meetings after making an appointment by email.
Problems classes
Individual contact with the lecturer / assistants
Use of the electronic teaching environment Ufora

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, written examination with multiple choice questions.

Examination methods in case of periodic evaluation during the second examination period
Written examination with open questions, written examination with multiple choice questions.

Examination methods in case of permanent evaluation
Participation, skills test, job performance assessment, report.
Possibilities of retake in case of permanent evaluation
examination during the second examination period is not possible.

Extra information on the examination methods
Periodic evaluation: evaluation of the insight into basic concepts and problem solving.
Non-periodic evaluation: permanent evaluation of attitude, knowledge and technical skills during lab work.

Calculation of the examination mark
Periodic evaluation: theory and problems (85%).
Non-periodic evaluation: lab work (15%).
When the student scores less than 10/20 for at least one of three components (theory, problems and lab work), he/she can no longer pass the entire course unit. If the total score is a mark of ten or more out of twenty, then this is reduced to the highest failing mark (9/20).
Students who are legitimately absent on certain days of the practical need to make up the relevant exercises at a different time. Unjustified absence in the practical gives rise to a total maximum score (theory + practical exercises) of 9/20, irrespective of the score for the theoretical part.
The marks resulting from the permanent evaluation are retained in the second examination period, as the second examination period only consists of a periodic evaluation.

(Approved)