Introduction to Mineralogy (C000138)

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 Specification
Valid as from the academic year 2020-2021

Course offerings and teaching methods in academic year 2020-2021

| A (semester 1) | Dutch | Gent | practicum | 20.0 h |
|               |      |      | lecture    | 30.0 h |
|               |      |      | online lecture | 0.0 h |

Lecturers in academic year 2020-2021

Dewaele, Stijn
WE13 lecturer-in-charge

Offered in the following programmes in 2020-2021

| Bachelor of Science in Geology | 5 | A |
| Preparatory Course Master of Science in Geology | 5 | A |

Teaching languages
Dutch

Keywords
Minerals, physical properties, identification, composition, formation, classification.

Position of the course
The course is intended to provide first year students with a thorough insight into the most important aspects of mineral science. Minerals are the basic constituents of rocks and hence, a good training in mineralogy is essential in any academic education dealing with the Earth as our natural environment. Mineralogy is directly based on scientific knowledge that has been gathered in more fundamental physical sciences such as (solid state) physics and (inorganic) chemistry. It is therefore logical to include a mineralogy course in the study program of a first bachelor in Geology.

Contents
- General characteristics of minerals in hand specimens.
- Concepts of crystallography including crystal geometry (mineral symmetry and morphology) and crystal structure (crystal lattices and space groups).
- Physical properties of minerals.
- Elements of crystal chemistry.
- Mineral stability: phase diagrams
- Analytical techniques in mineralogy.
- Systematic mineralogy with emphasis on rock forming minerals.
- Occurrence of minerals in nature.

Initial competences
No previous knowledge of mineralogy is required but a basic training in chemistry and physics is recommended.

Final competences
1. A student possesses a good knowledge of the most important rock forming minerals and has a clear insight into their composition, internal structure and in their most important physical and chemical characteristics.
2. The student has a good knowledge and understanding of the main groups of minerals and he/she can recognize the main mineral species macroscopically.

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

(Approved)
Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods
Lecture, practicum, online lecture

Extra information on the teaching methods
- Lectures supported by digital projection of figures, photos, movies, and 3D animations.
- Practical exercises on mineral identification, chemical analyses of minerals, and crystal symmetry using specific 3D visualisation software.
- Due to COVID19, the type of education can be modified if it seems to be necessary

Learning materials and price
Textbook and exercises on the Ufora platform.

References

Course content-related study coaching
- Theory: answers to questions and discussion of problems during and after classes.
- Practicals: guidance by assistant during the practicals; rehearsal session scheduled before the exam.

Evaluation methods
end-of-term evaluation

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

Possibilities of retake in case of permanent evaluation
examination during the second examination period is possible

Extra information on the examination methods
- Theory: Written examination.
- Practicals: Written examination based on the recognition of hand specimens, crystal shapes, the interpretation of a mineral chemical formula, and the stereographic projection of a crystal.
- Due to COVID19, the type of evaluation can be modified if it seems to be necessary

Calculation of the examination mark
- Theoretical exam 75%, practical exam 25%.
- Participation in the practical exercises is mandatory.
- The students should be successfully for both the theoretical and practical exam to pass for the entire course

(Approved)