

Physical–Chemical Properties of Rocks, Minerals and Materials (I002195)

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

Credits 5.0 **Study time** 150 h

Course offerings in academic year 2023-2024

A (semester 2) English Gent

Lecturers in academic year 2023-2024

Malehmir, Alireza

UPPSAL01 lecturer-in-charge

Offered in the following programmes in 2023-2024

[International Master of Science in Sustainable and Innovative Natural Resource Management](#)

crdts **offering**

5 A

Teaching languages

English

Keywords

Position of the course

Contents

This course is divided into physical and chemical properties. Physical properties include an introduction on rocks and minerals, density, porosity, permeability, elastic and inelastic properties, rock quality and seismic properties, magnetic electric and thermal properties of rocks, in-situ and downhole physical property measurements. Chemical properties include mineral and material structures, composition and alloying, thermodynamics of minerals and materials, investigation of chemical properties by analytical methods.

Initial competences

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Final competences

- 1 able to: Describe relationships between different physical and chemical properties.
- 2 able to: Compare different types of minerals and rocks and their physical and chemical properties.
- 3 able to: Formulate different systems of symmetries and anisotropic systems associated with each system.
- 4 able to: Relate scale dependencies between various measurements (lab, field and/or downhole).
- 5 able to: Design suitable geophysical and laboratory methods for the exploration and/or processing of a given mineral.

Conditions for credit contract

This course unit cannot be taken via a credit contract

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Lecture, seminar, independent work, practical

Extra information on the teaching methods

Lectures, seminars, solving exercises (homework and computer lab work) and lab and field measurements.

Learning materials and price

References

Course content-related study coaching

Evaluation methods

end-of-term and continuous assessment

Examination methods in case of periodic evaluation during the first examination period

Assignment, oral assessment

Examination methods in case of periodic evaluation during the second examination period

Assignment, oral assessment

Examination methods in case of permanent evaluation

Oral assessment, assignment

Possibilities of retake in case of permanent evaluation

examination during the second examination period is possible in modified form

Extra information on the examination methods

Written examination, homework assignments, computer projects and written report.

Calculation of the examination mark

Written examination (50 %)

Homework assignments, computer projects and written report (50%)