Course
Specifications
Valid as from the academic year 2020-2021

Petrology of Crystalline Rocks (C003961)

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 5.0  Study time 150 h  Contact hrs 62.5 h

Course offerings and teaching methods in academic year 2020-2021

A (semester 1)  Dutch  Gent  practicum  30.0 h
 lecture: coached  5.0 h
 exercises  5.0 h
 lecture  25.0 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  crdts offering
5  A
Preparatory Course Master of Science in Geology
5  A

Teaching languages

Dutch

Keywords

Petrology, rocks, minerals, textures, polarising microscope, geodynamics

Position of the course

The course is intended to provide geology students with thorough insights in the origin and formation of igneous, sedimentary and metamorphic rocks. It focuses on how the genetic aspects of rocks are reflected in their chemical, mineralogical and textural characteristics.

Contents

Igneous rocks
• magma genesis and differentiation
• crystal-melt equilibria and dynamics
• kinetic processes and rock textures
• petroprotectic associations

Metamorphic rocks
• metamorphic processes
• metamorphic conditions and metamorphic grade
• metamorphism of pelitic sediments, of carbonates and of magmatic rocks

Geochemistry of crystalline rocks
• Trace element fractionation during magmatic differentiation - partition coefficients
• Meteorites as reference for chemical differentiation inside Earth and Moon
• Formation of elements and isotopes, and their partitioning between the geochemical reservoirs

Geodynamic context of magmatic and metamorphic rocks

Initial competences

The student has received a basic training in petrology. He/she is familiar with the petrographic microscope and is able to determine the rock forming minerals with this instrument. He/she is able to identify and describe the mineralogical composition and the textural characteristics of rocks. The student should have successfully completed the courses Introduction to Mineralogy, Introduction to Petrology, System Earth: Geology, and should have followed the courses Optical Mineralogy & Petrography, and Stratigraphy.

(Approved)
Final competences

1. The student shows an insight into the petrogenetic processes involved in the formation of igneous and metamorphic rocks.
2. She/he understands the links between the petrogenesis, chemistry, mineralogy and textural characteristics of rocks.
3. The student can apply theoretical knowledge of petrology to the study of earth materials in thin section.

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

Lecture, practicum, seminar: coached exercises, online lecture

Extra information on the teaching methods

Colleges
Practical exercises with the use of the petrographic microscope.
Due to COVID19, the type of education can be modified if it seems to be necessary.

Learning materials and price

Lecture notes and powerpoint files of lectures (via Ufora).

References


Course content-related study coaching

Theory: Interaction during lectures. Possibility to ask lecturer questions in person and via e-mail.
Practicals: guidance and feedback during the practicals.

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

not applicable

Extra information on the examination methods

Due to COVID19, the type of evaluation can be modified if it seems to be necessary.

Calculation of the examination mark

Theory: examination at the end of the semester (70%).
Practical: exam at the end of the semester (30%).
Participation in the practical exercises is mandatory to pass the course.

(Approved)