

Mineral Resources, Economics and the Environment (C003994)

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	<i>(nominal values; actual values may depend on programme)</i>		
Credits 6.0	Study time 150 h	Contact hrs	45.0 h

Course offerings and teaching methods in academic year 2022-2023

A (semester 1)	English	Gent	online lecture	0.0 h
			lecture	25.0 h
			self-reliant study activities	20.0 h

Lecturers in academic year 2022-2023

Dewaele, Stijn	WE13	lecturer-in-charge
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Offered in the following programmes in 2022-2023

	crdts	offering
Master of Science in Teaching in Science and Technology (main subject Geology)	6	A
Master of Science in Sustainable Land Management (main subject Land and Groundwater Management)	6	A
Master of Science in Sustainable Land Management (main subject Urban Land Engineering)	6	A
Master of Science in Geology	6	A
Master of Science in Geology	6	A
Exchange programme in Geology (master's level)	6	A

Teaching languages

English

Keywords

Mineral deposits, geodynamic processes, environment, economical and legal implications
mineral exploitation

Position of the course

This course is intended to provide the students with basic insight in the geology of mineral resources and their environmental and economic impact. This course provides information about a broad range of mineral deposits, covering their formation processes and geological characteristics, but also their industrial applications. The influence of geodynamic processes on mineral formation will be demonstrated during this course. Practical and environmental issues that arise during the life cycle of a mine and after its closure are addressed. After completion of this course, students will have gained deeper insight in the geology of natural resources, but also in the minerals industry and environmental impact of this industry.

Contents

1. Minerals, mineral availability, natural resources in global economic patterns
2. Origin of mineral deposits: introduction to ore-forming processes
3. Description of main groups of natural resources: geology, formation processes and industrial application
 - a. Iron, steel and ferroalloy metals
 - b. Light and base metals
 - c. Technology elements
 - d. Precious metals and gems

- e. Agricultural and chemical minerals
- f. Construction and industrial minerals
- 4. Environmental Geochemistry and mineral resources
- 5. Mineral exploration and production
- 6. Mineral Law and land access
- 7. Mineral economics

Initial competences

A basic knowledge of mineralogy, geochemistry, magmatic and metamorphic petrology, structural geology, sedimentology and ore forming processes is useful.

Final competences

The students obtain basic insight in the geology of mineral resources and their environmental and economic impact.

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, self-reliant study activities, online lecture

Extra information on the teaching methods

Lectures, Take-home assignment.

Learning materials and price

slides and syllabus available : yes

Obligatory handbooks : no

References

- Walter L. Pohl (2011). Economic Geology: Principles and Practice
- Stephen E. Kesler, Adam C. Simon (2015). Mineral Resources, Economics and the Environment
- Anthony M. Evans (1997). An Introduction to Economic Geology and Its Environmental Impact

Course content-related study coaching

Consultancy by professor and staff members (interactive support via Ufora).

Library for additional information.

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, oral examination

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

Written examination with open questions, oral examination

Examination methods in case of permanent evaluation

Assignment

Possibilities of retake in case of permanent evaluation

examination during the second examination period is possible

Extra information on the examination methods

Oral examination (70%).

Presentation of assignment (30%).

Calculation of the examination mark

periodic evaluation 70% and permanent evaluation 30%

If successful for the assignment, the points can be transferred to the next examination period of the same academic year, but not towards the following academic year.