

SYLLABUS

STUDY YEAR 2024/2025

Master programme in Applied Environmental Geochemistry

Enrollment semester Autumn 2024

DATE

2022-05-30

REFERENCE NO.

LTU-2120-2022

DECISION MAKER

The Board of the Faculty of Science and Technology

Programme content and structure

The education aims to understand natural systems and the cause and effect when a natural system becomes polluted. The knowledge serves as a basis for developing preventive measures as well as creating new methods and improving available methods and technologies to reduce environmental impact.

The education comprises courses in applied environmental geochemistry, which includes knowledge of the occurrence, mobility, and fixation of elements in natural and contaminated systems. Specifically, the courses in the program are characterized by theoretical and practical components and develop the ability to use tools in environmental forensics and environmental mineralogy, applied to real-life cases and data in collaboration with external partners. Environmental forensics includes tracing the sources of elements, whether natural or contaminants from human activity and the underlying biogeochemical processes that affect their mobility. The education focuses on training competence for the environmental sector, including industry and infrastructure development, and other related sectors such as government agencies and consultants.

The education is international, and the teaching is conducted in English.

A beginner's course in Swedish, worth 3 higher education credits, is offered to foreign students. The course is not included in the degree and is taken in addition to mandatory courses in education.

Credits

120 credits

Degree

- Degree of Master of Science (120 credits) - Major; Geosciences with specialisation Applied Environmental Geochemistry

Entry requirements

Bachelors degree of minimum 180 ECTS with at least 60 ECTS in the area of nature resource technology, geology or geoscience. Good knowledge in English, equivalent to English 6

Selection

The selection procedure is based on academic qualifications, quality and quantity aspects

Selection group

Academic: 100%

Compulsory courses

Compulsory courses 120 credits

Course code	Course	Cr	Level	Comment
New	Environmental Geoforensics	7.5	Master's level	
New	Degree Project in Applied Environmental Geochemistry, master	30	Master's level	
L0048K	Climate Change, Principles and Processes	7.5	Bachelor's level	
L7003K	Senior Design Project in Applied Geology	15	Master's level	
L7013K	Geochemical Modelling	7.5	Master's level	
L7016K	Mine Waste	7.5	Master's level	
L7017K	Geochemical Exploration	7.5	Master's level	
L7021K	Freshwater Geochemistry	7.5	Master's level	
L7026K	Sampling and Evaluation of Environmental Data	7.5	Master's level	
L7027K	Hydrogeochemistry	7.5	Master's level	
L7028K	Environmental Mineralogy and Risk Assessment	7.5	Master's level	
O7021K	GIS in Geoscience	7.5	Master's level	

Course offered outside the obligatory courses - not compulsory - For non Scandinavian students

Course code	Course	Cr	Level	Comment
S0046P	Swedish for International Students 1	3	Bachelor's level	Selectable

Study schedule

Year of study 1 Enrollment semester Autumn 2024, Is offered in 2024/2025

Study-period	Course code	Course	Cr	Comment
1	L0048K	Climate Change, Principles and Processes	7.5	
1	L7026K	Sampling and Evaluation of Environmental Data	7.5	
1	S0046P	Swedish for International Students 1	3	Selectable
2	L7013K	Geochemical Modelling	7.5	
2	L7021K	Freshwater Geochemistry	7.5	
3	L7027K	Hydrogeochemistry	7.5	
3	O7021K	GIS in Geoscience	7.5	
4	L7016K	Mine Waste	7.5	
4	L7028K	Environmental Mineralogy and Risk Assessment	7.5	

Year of study 2 Enrollment semester Autumn 2024, Is offered in 2025/2026, planned study schedule

Study-period	Course code	Course	Cr	Comment
1	L7017K	Geochemical Exploration	7.5	
1-2	L7003K	Senior Design Project in Applied Geology	15	
2	New	Environmental Geoforensics	7.5	
3-4	New	Degree Project in Applied Environmental Geochemistry, master	30	