

Exploration and Environmental Geophysics (I002198)

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 15.0 **Study time** 450 h **Contact hrs** 135.0 h

Course offerings in academic year 2022-2023

A (semester 1) English Gent

Lecturers in academic year 2022-2023

Malehmir, Alireza UPPSALOT lecturer-in-charge

Offered in the following programmes in 2022-2023

	crdts	offering
International Master of Science in Sustainable and Innovative Natural Resource Management	15	A

Teaching languages

English

Keywords

Position of the course

Contents

The seismic reflection method, the seismic refraction method, gravity measurements, magnetization and magnetic measurements, electrical methods, electromagnetic methods including ground penetrating radar, radiometric methods, borehole logging, petrophysics, geophysical field techniques, geophysical modelling and interpretation, field course.

Initial competences

Final competences

- 1 Explain the physical principles governing the propagation of seismic waves, describe and apply the principles of seismic data acquisition and have a broad understanding of the instruments used in the field.
- 2 Interpret a seismic section and identify different seismic phases.
- 3 Describe the basic processing steps of reflection seismic data.
- 4 Derive a model of the subsurface based on refraction seismic data.
- 5 Be able to make gravity measurements and calculate Free-air and Bouguer anomalies and interpret gravity data.
- 6 Describe the common types of magnetization, understand how a Proton and a Cesium Vapour magnetometer works, and interpret magnetic data.
- 7 Describe the different electrical and electromagnetic methods and how they relate to electrical conductivity and dielectric permittivity.
- 8 Compare different geophysical methods, describe their weaknesses, strengths, and applicability to different problems and geological environments.

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, fieldwork, seminar, seminar: practical PC room classes

Extra information on the teaching methods

S1 (WS): Lectures

S1 (WS): Incl. computer exercises and a compulsory field course / Exercises

S1 (WS): Seminar

Learning materials and price**References****Course content-related study coaching****Evaluation methods**

end-of-term evaluation

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

Report

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

Report

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

For the award of credit points it is necessary to pass the module exam.

The module exam contains:

KA*

AP*: Report on computer exercises

AP*: Report on compulsory field course

* In Modules with more than one exam, this exams has to be pass successfully respectively has to have a result at least "ausreichend" (4,0).

Calculation of the examination mark

The Grade is generated from the examination result(s) with the following weights (w):

KA* [w: 7]

AP*: Report on computer exercises [w: 5]

AP*: Report on compulsory field course [w: 3]

* In Modules with more than one exam, this exams has to be pass successfully respectively has to have a result at least "ausreichend" (4,0).