

Soil Chemistry (I002773)

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

Credits 5.0 **Study time** 150 h **Contact hrs** 50.0h

Course offerings and teaching methods in academic year 2022-2023

A (semester 1)	English	Gent	lecture	20.0h
			practicum	25.0h
			lecture: plenary exercises	5.0h

Lecturers in academic year 2022-2023

Tack, Filip LA24 lecturer-in-charge

Offered in the following programmes in 2022-2023

	crdts	offering
International Master of Science in Soils and Global Change (main subject Physical Land Resources and Global Change)	5	A
International Master of Science in Soils and Global Change (main subject Soil Biogeochemistry and Global Change)	5	A
Exchange Programme in Bioscience Engineering: Agricultural Sciences (master's level)	5	A
Exchange Programme in Bioscience Engineering: Land and Forest management (master's level)	5	A

Teaching languages

English

Keywords

soil, chemistry, pedology, dynamics of elements

Position of the course

This course is a basic course for soil science students aiming to provide students with the chemical aspects of soil that are of importance in understanding its functioning, management and use. Along the trajectory, relevant chemical methods of soil analysis are studied.

Contents

1. General chemistry concepts
2. Soil composition
3. Acidity and alkalinity
4. Redoxpotential
5. Carbonates
6. Organic matter
7. Sesquioxides
8. Soluble salts
9. Sorption
10. Major nutrients: nitrogen
11. Major nutrients: phosphorous
12. Major nutrients: potassium and secondary macronutrients
13. Trace elements

Initial competences

Elementary knowledge of inorganic chemistry

Final competences

- 1 Explain soil components and chemical reactions in soils
- 2 Explain the principle of analytical methods for soil characterization
- 3 Select suited analytical methods for characterizing soil properties

- 4 Interpret analytical results of soil analysis
- 5 Evaluate the accuracy and the reliability of analytical data

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: plenary exercises, Practicum, Lecture

Extra information on the teaching methods

Practicum: lab exercises: Analysis of soil

Lecture: plenary exercises: during the theory class, example exercises are interactively solved.

Learning materials and price

Lecture notes are available during the first lecture.

Slides are electronically available.

References

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Course content-related study coaching

Illustration of theory via problems and hands-on laboratory exercises.

Assessment moments

end-of-term assessment

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

Written examination with open questions

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

Written examination with open questions

Examination methods in case of permanent assessment

Report

Possibilities of retake in case of permanent assessment

examination during the second examination period is not possible

Calculation of the examination mark

A satisfactory participation to all practical exercises is a prerequisite to succeed. An absence can be accepted only provided it is thoroughly justified (e.g. medical note). Students who fail to meet this requirement will obtain a final score of zero for the course.

The score obtained for the practical exercises counts for 5 points of the total score of 20.