GHENT UNIVERSITY

Course Specifications

From the academic year 2021-2022 up to and including the academic year

Environmental Inventory Techniques (I002170)

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

Credits 3.0 **Study time 75 h** **Contact hrs** 30.0h

Course offerings and teaching methods in academic year 2022-2023

A (semester 1)	English	Gent	group work	2.5h
			lecture	17.5h
			seminar: practical PC room classes	10.0h

Lecturers in academic year 2022-2023

Calders, Kim	LA20	lecturer-in-charge

Offered in the following programmes in 2022-2023	**crdts**	**offering**
Bachelor of Science in Environmental Technology	3	A
International Master of Science in Sustainable and Innovative Natural Resource Management	3	A
Master of Science in Biology	3	A
Exchange Programme in Bioscience Engineering: Environmental Technology (master's level)	3	A
Exchange Programme in Bioscience Engineering: Land and Forest management (master's level)	3	A

Teaching languages

English

Keywords

sampling strategy, spatial inventory, spatial survey, geophysical prospection

Position of the course

Introductory course This course provides an overview of the basic principles for sampling strategy design with a main focus on a spatial context. Applications are oriented to the inventory and evaluation of primary and secondary environmental resources (e.g., landfill mining).

Contents

Sampling (design) in space: design- and model-based sampling strategies for inventory in an environmental context

Visualization (and processing) of spatial data in(to) usable maps
Integration of secondary information from geophysical prospection (mainly electromagnetic survey data) in sampling design and data processing

Initial competences

Basic knowledge statistics, physis and earth sciences

Final competences

1 Understand and correctly apply fundamental principles of (spatial) sampling
2 Design and plan an appropriate sampling strategy for different objectives of (spatial) inventory
3 Correctly visualize and process spatial data into usable maps
4 Integrate geophysical survey data in sampling design and data processing

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

Group work, Lecture, Seminar: practical pc room classes

Learning materials and price

Course notes are available

References

Webster, R. & Lark, M. (2013). *Field Sampling for Environmental Science and Management*. Oxon, United Kingdom: Routledge. ISBN: 978-1-84971-368-9
de Gruijter, J., Brus, D. J., Bierkens, M. F. P., & Knotters, M. (2006). *Sampling for Natural Resources Monitoring*. Springer. ISBN:540-22486-6.
Goovaerts, P. (1997). *Geostatistics for Natural Resources Evaluation*, New York, NY: Oxford University Press.
Viscarra Rossel, R. A., McBratney, A., & Minasny, B. (Eds.). (2010). *Proximal Soil Sensing*. Progress in Soil Science. New York, NY: Springer.. ISBN: 978-90-481-8858-1.

Course content-related study coaching

The lectures are supported by MS PowerPoint presentations. The exercises include field work and supervised PC-practicals.

Assessment moments

end-of-term and continuous 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

Extra information on the examination methods

Written examination with open questions (knowledge and insight questions); Permanent evaluation: reports of practical exercises

Calculation of the examination mark

Final score = 60 % score periodic evaluation + 40 % score non-periodic evaluation. Students who withdraw from periodic and/or non-periodic evaluations for this course may be declared failed by the examinator.