

## Environmental Inventory Techniques (I002170)

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.

|                    |  |                    |        |
|--------------------|--|--------------------|--------|
| <b>Course size</b> | <i>(nominal values; actual values may depend on programme)</i> |                    |        |
| <b>Credits</b> 3.0 | <b>Study time</b> 75 h   | <b>Contact hrs</b> | 30.0 h |

### Course offerings and teaching methods in academic year 2022-2023

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

### Lecturers in academic year 2022-2023

|              |      |                    |
|--------------|------|--------------------|
| Calders, Kim | LA20 | lecturer-in-charge |
|--------------|------|--------------------|

### Offered in the following programmes in 2022-2023

|   | crdts | offering |
|---|-------|----------|
| <a href="#">Bachelor of Science in Environmental Technology</a>   | 3     | A        |
| <a href="#">Master of Science in Biology</a>  | 3     | A        |
| <a href="#">International Master of Science in Sustainable and Innovative Natural Resource Management</a> | 3     | A        |
| <a href="#">Exchange Programme in Bioscience Engineering: Environmental Technology (master's level)</a>   | 3     | A        |
| <a href="#">Exchange Programme in Bioscience Engineering: Land and Forest management (master's level)</a> | 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, physics 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 Grijter, 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.*

**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

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

Written examination with open questions

**Examination methods in case of permanent evaluation**

Report

**Possibilities of retake in case of permanent evaluation**

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 examiner.