

## Environmental Inventory Techniques (1002170)

**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<br>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 |
|---|-------|----------|
| <a href="#">Bachelor of Science in Environmental Technology</a>   | 3     | A        |
| <a href="#">International Master of Science in Sustainable and Innovative Natural Resource Management</a> | 3     | A        |
| <a href="#">Master of Science in Biology</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 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 examiner.